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THE DOCTRINE OF AUTA.

IN the "Scientific Proceedings of the Royal Dublin Society" (Vol. VI, Part IX, p. 475, 1890), Dr. Johnstone Stoney, F. R. S., published an interesting and carefully-reasoned paper "On the Relation between Natural Science and Ontology." The same author had previously (1885), in a Friday evening discourse at the Royal Institution of London, discussed the problem, "How Thought Presents Itself Among the Phenomena of Nature." Dr. Stoney's communications have not (I venture to think) received the consideration to which they are entitled alike on the score of their logical consistency, if his premisses and assumptions be granted, and by reason of the author's scientific eminence as a physicist. I therefore propose, first, to endeavor to set forth his monistic *Doctrine of Auta*; and secondly to offer some criticisms thereon. Unfortunately Dr. Stoney's pages bristle with new technical terms, which, though no doubt they have been serviceable to him in the attainment of precision of thought, make his paper hard reading. Some of these I shall introduce; others which seem less essential to the argument I shall omit. It would be scarcely fair on the reader's teeth or on the author's store to transfer all these hard nuts from Dublin to Chicago.

No philosophical discussion of a problem involving perception can be regarded as complete without the introduction of an orange. Dr. Stoney, indeed, substitutes a fire; but this, though it shows philosophical independence, cannot for a moment be sanctioned by

any good Berkeleyan. An orange then, as such, is a phenomenal object formed, in a way we need not now consider, by the synthesis of perceptions. These perceptions, themselves synthetic, Dr. Stoney calls "tekmeria," since they are signs within my mind that events are happening in a part of the universe that is distinct from my mind. The phenomenal object is supposed by men untrained in inquiries relating to the mind to have a non-egoistic existence—that is, an existence independent of the percipient mind. But this supposition is found on careful scrutiny to be an error. It is a product of mental synthesis, and is therefore termed by Dr. Stoney a "syntheton." It is also termed a "protheton" in contradistinction to an "antitheton," which we shall come to shortly.

Now if the phenomenal orange is a "syntheton"—that is, a product of perceptual synthesis—it clearly cannot be regarded as the *cause* of the perceptions, through and by means of which it is constructed in mental synthesis. Here popular thought and ordinary language are apt to mislead us. For ordinary language is throughout built upon the popular belief that the objects of the phenomenal world are non-egoistic or independent *existences*, and, moreover, that they are the cause of the perceptions which come into existence when we exercise our senses. This is, however, "to put the car before the horse." It is to imagine that a structure built up out of the effects of a thing can be the cause of those effects. The phenomenal orange is built up of perceptions instead of being the cause of them. Their cause is therefore to be sought elsewhere than in the phenomenal world of objects. The orange, *qud* orange, is therefore a "syntheton," and cannot as such be the cause of the perceptions or "tekmeria," which go to its synthesis.

Let us now look at these perceptions or "tekmeria" from another point of view. They are states of consciousness: they are *thoughts*, if we use this word in its widest extension to embrace everything of which I or my fellow-men or the lower animals are conscious. But my own thoughts are, so long as they last, things that exist. They may be representative of something outside me, but they *are* also *real existences*. While they last they constitute a part of the universe of existing things. They are, in Dr. Stoney's

terminology, *auta* (*τὰ ὄντα αὐτά*), the very things themselves. An *auto* (we shall throughout *italicise* all that belongs to this autic order of existence) is a *thing which really exists*, and in no wise depends on the way we, human minds, may happen to regard it. Our impressions or beliefs about it may be correct or may be erroneous; but the term *auto* means the *thing itself*.

Perceptions, then, inasmuch as they are thoughts, are *auta*. They belong, moreover, to that class of real existences which, since they are woven into the tissue of *minds* (my mind and the minds of my fellow-men and of the lower animals) are termed *egoistic auta*. They do not remain, however, persistent and unchanged; for perceptions come and go and are modified as they pass like waves over the surface of consciousness. What causes this coming and going, and these changes in the *egoistic auta* we call perceptions? Not, as we have already seen, the world of phenomenal objects! What then, but other *auta*, which, since they produce effects upon men's minds through their senses, may be termed *sense-compelling auta*? The phenomenal orange is thus a "syntheton" produced through a synthesis of the effects wrought upon my *mind* by an autic existence, called by Mr. Stoney the *onto-orange*. The phenomenal orange is, as we have seen, a "protheton"; the *onto-orange* is its *antitheton* in the universe of real existences.

We are now beginning to open up Dr. Johnstone Stoney's conception of the relation of the autic *universe* to phenomenal Nature. Nature is the totality of phenomenal objects; but corresponding with each phenomenal object or "protheton" there is an *onto-object* or *antitheton*; and the totality of *antitheta* constitute the *universe*. *Minds*, mine and those of other beings, constitute the egoistic part of the universe; the rest of the universe is constituted by *sense-compelling auta*.

We may liken the *sense-compelling universe* to a great machine in motion, and the *tekmeria* or perceptions which it produces within our minds to shadows cast by it. The laws of the movements of the machine are the real laws of the universe—laws of nature are but the laws of the changes which the shadows in consequence undergo. It is these shadow laws alone which natural science can

reach: the real laws of the *universe* of which these are shadows are beyond its grasp. In Nature the reflective eye of science sees not only phenomenal objects, but the relations which they bear to each other. But such relations are themselves phenomenal; they are protheta of which the *onto-relations* of the real *universe* are the *antitheta*. Every space-relation, therefore, in Nature—for instance, that my foot is at present three yards from the fender—has a real autic relation in the sense-compelling *universe*, which is its *antitheton*; an *onto-relation* between the *onto-foot* and *onto-fender*, meaning by these terms the *auta* which send men the tekmeria which, when synthesised, furnish these two phenomenal objects. The space-relations of Nature are but the shadows cast by the *autic relations* within the *minds* of men, and perhaps some other animals.

But among these shadows there can be no efficient causation. When a change takes place in the sense-compelling *universe*, the mighty machine will cast one shadow before the change and another after. The second shadow will accordingly succeed the first in orderly sequence, but the relation between the shadows is not the relation of cause and effect. Accordingly, in the laws of Nature which have been discovered by scientific investigation, we find abundant instances of unfailingly concomitant events and of uniformities of sequence, but not one single instance of cause and effect. There is nothing competent to cause one body to exclude another from the space it occupies. A statement of the fact is one of the laws of Nature. If a stone be allowed to drop in the vicinity of the earth, its downward speed is accelerated by a perfectly definite law. This law is one of the Uniformities of Nature which scientific inquiry has brought to light. But within the domain of Physics there is no cause of acceleration. The facts as to what occurs in Nature can be observed; the circumstances under which they occur can be investigated; similar cases can be compared; and the laws to which the simultaneous or successive events conform may be brought to light. But here our knowledge ends. Physical science has said its utmost.

Now all this is changed when we turn to the only field of observation accessible to us in which we are dealing directly with *auta*.

The *thoughts* of which *I* consist, the thoughts which are my *mind*, are *auta;* a very small group of *auta*, no doubt, in the mighty *Universe*, but still an actual sample, though a very special and one-sided sample of what *auta* really are. Now in the operations that go on in my mind I do find instances, some few instances, of causes producing effects. The familiar case of a geometrical demonstration producing in a man's mind a belief in the truth of the conclusion is a case in point. Here the understanding of the proof is the efficient cause of the belief in the conclusion which accompanies that understanding. A wish to accomplish something, and a knowledge of how to go about it, both of which are *thoughts* in the *mind*, are a part of the efficient cause of subsequent events, unless counteracted by other causes. A few other examples can be obtained from the same small field of observation; and this is all that man, in his isolated position, has any right to expect; for the bulk of his thoughts are due, at least in large part, to autic causes which lie outside his mind, and it is there also that those of his thoughts that are known to be causes, usually exhibit their effects. When perceptions arise in my mind, the effect indeed is within my mind, but the cause is beyond it; and when I move my muscles the cause is within my mind, but it is outside the mind that it operates. The instances are indeed few where the causes and the effects are both within my tiny group of *auta*, and it is only in these cases that I can have the process of causes producing effects under my inspection.

But since cases can be cited, however few, they suffice to establish the fact that the relation of cause and effect, in its full sense, does exist in some instances in the autic *universe*; whereas it has nowhere any place within the domain of physical science. The relation of cause and effect among other *auta* cannot from the nature of the case be proved. But from its occurrence in that small part of the *universe* which we do know, we may fairly assume its occurrence in all parts of that *universe*. Such an assumption is at any rate justifiable by scientific method.

We must now pass to another point. The scientific analysis of Nature by the physicist has led to an hypothesis which may be regarded as the utmost simplification of which the shadows cast within

the human mind by the sense-compelling autic *universe* are susceptible. This Dr. Stoney calls the Diacrinomenal Hypothesis; according to which Nature is made up of objects each of which consists of almost inconceivably minute and swift motions. The phenomenal orange is a group of molecular motions; and if I bowl it across the table the visible molar motion is a secondary motion of that group of primary molecular motions which constitutes the phenomenal object as such. And not only is the phenomenal object a group of minute and swift motions, but all the steps between that object and our brain, all that takes place in the air or æther, in our organs of sense and nerves, can also be represented in terms of motion. And finally a change consisting of motions takes place in the brain itself, whereupon we become conscious of thought. That change which would be appreciated as motions by a bystander who could search into our brains while we are thinking, we should experience to be *thought*. Thus we find that in certain cases the *autic existence* that corresponds with motion, namely in the motions of our own brain molecules, is *thought*. And the most probable hypothesis as to the true relation of phenomenal Nature and the autic *universe* is that what we have found to be true in some cases is always true, and that in every case it is *thought* (or rather a change in the causal relation in which thought stands to thought) which is the *antitheton* of motion; so that the totality of all actual existences, the *universe*, is in fact identical with the totality of existing *thought*. Of course all this *thought*, with the exception of that tiny group that is my *mind*, is as much outside my consciousness as are the thoughts of my fellow-men and of the lower animals.

Under this view the *minds* of men and of other animals are specialised specks, as it were, of a vast ocean of *thought*, to which they bear a like inconspicuous proportion to that borne by the few brain motions of which they are the *antitheta*, to the totality of motions throughout Nature. Under this view the laws of the *universe* are the laws of *thought*. This is a very different thing, be it noted, from saying that they are the laws of human thought. The laws of human thought bear to them the same small proportion which the laws of the action of the wheels of a watch upon one another bear to the

entire science of dynamics. The science of dynamics could never be evolved from a study of these laws. But perhaps it may not be hopeless for man to attain some sound knowledge of the laws of cosmic *thought*, inasmuch as we have some few instances of the way *thought* acts upon *thought* open to our investigation in our own minds, and since this is supplemented by our knowledge of the physical laws of nature, which are a shadow, a probably complete shadow, of all the laws of causation which operate throughout the *universe*, throughout the all-embracing *Mind* of the great *Autos*.

Such is Dr. Johnstone Stoney's conception of the relation of Natural Science to Ontology. I have presented it partly in his own words, partly in mine. It has been my conscientious endeavor to put it in as strong and favorable a light as possible, and not in any way to weaken the strength of its logical consistency. The main thesis may now be briefly summarised in the following propositions:

The phenomenal object is a syntheton or product of mental synthesis.

Its efficient cause is a *real existence* or *antitheton*.

Nature is the totality of phenomenal syntheta.

The *universe* is the totality of autic *antitheta*.

There is no causation in Nature; but the Uniformities of Nature are the shadows of the causal Laws of the Universe.

Thought has no place in Nature: it is part of the autic *universe*.

The syntheton of which *thought* is the *antitheton* is the motion of brain molecules.

It is a probable hypothesis that the *antitheta* of which the motions of Diacrinomenal Nature are the syntheta, are *thought*.

This is the monistic hypothesis, that there is but one kind of existing thing, viz. *thought;* in contradistinction to the dualistic hypothesis that there are two kinds of existing things, *thought* and *motion*.

I now pass from the attitude of expositor to the attitude of critic. And first I will attack a quite outstanding position, namely Dr.

Stoney's assumption that Clifford's hypothesis which he supports and extends is *the* monistic hypothesis, and by implication that it is the *only* monistic hypothesis. In opposition to this I venture to affirm that there are several forms or phases of monism. I have not space to discuss the matter; and must content myself with a bare enumeration of some of the logically possible forms of Dualism and of Monism.

1) DUALISM.

A. Synthetic Dualism: according to which there are two entities, the mind and the body; and these

a) either work side by side, without interaction, in pre-established harmony (*philosophic dualism*),

b) or interact the one on the other (*empirical dualism*).

B. Analytic Dualism: according to which there are two elements as the result of analysis; *motion* (with or without a material basis) and *consciousness;* the two elements being related in such a way that conciousness is inseparably associated with certain complex modes of motion.

2) MONISM.

A. Synthetic monism: according to which there is but one entity. And this entity may be:

a) The body, of which consciousness is a product (*materialistic or physical monism*);

b) The mind, of which the body in common with the world of phenomena is a fiction (*idealistic monism*);

c) The conscious organism, exhibiting certain transformations of energy which are felt as psychical states (*scientific monism*).

B. Analytic monism: according to which analysis discloses but one element; and this may be

a) *motion*, of which (or of one phase of which) consciousness is merely the psychical aspect (*analytic materialism*);

b) *consciousness*, of which motion is merely the phenomenal aspect (*analytic psychism*);

c) *x* (*the unknowable*) of which motion is the physical aspect and consciousness the psychical aspect (*monistic agnosticism*).

Such are some of the forms or phases of monism as compared with those of dualism. It will be seen that Dr. Johnstone Stoney's speculations fall under the head of what I have termed analytic psychism, according to which the sole ultimate reality disclosed by analysis is consciousness or thought. So far I have only reminded my readers that this, though one form of monism, is not the only form. To which Dr. Stoney may very possibly reply that it matters not to him whether there are five or fifty-and-five monistic heresies besides the true creed of which he is the prophet. He is only concerned with the establishment of the true monistic faith. And as herein I should very heartily agree with him, I will pass on without delay to criticise an assumption that lies close to the heart and centre of his hypothesis.

On the first page of Dr. Stoney's essay we read: "Let us, for convenience, call these real existences *auta*—the very things themselves. An *auto* is a thing that really exists, and in no wise depends on the way we, human minds, may happen to regard it." And on the second page we read: "My own thoughts are, at all events, things that exist: they at least are *auta* so long as they last. They are, accordingly, while they last, a part of the *universe of existing things*." No proof is offered of this latter assumption that my thought, human thought, is part of the universe of *auta*. I venture to call this assumption in question. I demand proof of its validity. Nay, I am ready to go further and roundly assert that my thoughts are not *auta*, and furnish no evidence whatever as to the nature of such *auta*. I am quite aware that I may seem to be giving the lie to a direct deliverance of consciousness; and that it will be said that it is obviously impossible to deny the existence of thought without at the same time exercising that, the existence of which is denied—a dictum which contains a very pretty play upon two different uses of the word "existence."

I go back to the orange, without which as a philosopher I am lost. I hold it in my hand, look steadfastly at it, and drink in with my nostrils its fragrant aroma. What says consciousness? That the phenomenal object I call an orange exists. It says nothing about independent existence, nothing about *auta*. The direct de-

liverance of consciousness is that an object-in-consciousness exists. If a "plain man" says that the orange has a real existence, as such, independent of consciousness, he is going beyond the direct deliverance. And if a philosopher says that consciousness has a real existence, as such, independent of the object, he too is going beyond the direct deliverance. And if, as would seem to be the case, Dr. Stoney relies on the deliverance of consciousness for the justification of his statement that "perceptions, while they last, are *auta*, real existences," I submit that he is relying on a misinterpretation of the deliverance of consciousness.

The existence of the object-in-consciousness is the datum from which plain man and philosopher alike must start. On this foundation we must base all our reasonings and speculations. Physical science directs its attention to the "object" side of the given relation. And it reaches its "diacrinomenal" result that the orange may for physical purposes be represented as a group of swift and rapid molecular motions. But can physics at any stage of its analysis shake itself free from the "consciousness" side of the relation? Assuredly not. All that it can do is to represent the object-in-consciousness we call an orange in terms of other objects-in-consciousness we term molecular motions. Psychology directs its attention to the "consciousness" side of the given relation. It analyses the object-in-consciousness into percepts, sensations, and so forth. But can psychology at any stage of its analysis shake itself free from the "object" side of the relation? Assuredly not. All that it can do is to represent the consciousness-of-the-object we call an orange, in terms of the objects-in-consciousness we term sensations, relations between sensations, and so forth.

The relation of the consciousness-of-an-object to the object-in-consciousness may be made clear by the analogy, which is something more than an analogy of vision and the visual field. For clear and distinct vision, a well-illuminated object of vision, and a healthy organ of vision are necessary as coöperating factors. So, too, for distinct consciousness a definite object-in-consciousness and a well-defined consciousness-of-the-object are necessary as coöperating factors. More than this. Unless there be some object of vision, how

ever vague, and some organ of vision, however dim, no vision at all is possible. The coöperation of the two factors is essential. So, too, unless there be some object-in-consciousness, however vague, and some consciousness-of-the-object, however dim, no consciousness at all, in anything like the human sense of the word "consciousness," is possible. Here, again, the coöperation of the two factors is essential. *And neither factor is ever given in experience without the other.*

Writing as I am, for readers of *The Monist*, I need hardly turn aside to explain what I mean by an object-in-consciousness. And yet perhaps a few words on the subject may not be out of place, and may prevent possible misunderstanding. An object-in-consciousness is not necessarily a tangible, visible object, like an orange. The yellowness, the sweetness, the weight, the bare existence of the orange, may each in turn be an object in consciousness. For the physicist the tangible orange may be represented in terms of swift, infinitesimal motions; and these, not less than the phenomenal orange, are objects in consciousness. A conception of consciousness itself, an imperfect conception, but the best we can frame, may be an object of consciousness, just as a reflected image of the eye may be to the eye an object of vision.

It is generally believed by modern psychologists that all objects-in-consciousness are derivable by processes of abstraction, generalisation, and so forth, from the primitive datum of a perceptual object. And it must be remembered that it is only in abstraction that we distinguish between the object-in-consciousness and the consciousness-of-the-object. The two terms of this, for us, inevitable relation are given in inseparable coördination. But in abstract thought we can distinguish the inseparable terms; distinguish in thought, that is to say, what is inseparable in actual experience. To continue the analogy of vision, we can make the one term focal, while the other term remains marginal in the field of view. And we can neglect, for the purposes of our thought and reason, the marginal term. But we cannot get rid of it. We may deal, as in physics, with motion, neglecting the consciousness in and through which it is appreciated; but we cannot get rid of this consciousness.

Or we can deal, as in psychology, with the consciousness, neglecting the object-in-consciousness; but we cannot get rid of this object. The object-out-of-consciousness and the consciousness-without-an-object are alike unknown—or, if the reader prefers it, unknowable, which he may write with as many capital letters as seemeth to him good. The common-sense realist believes in the existence of objects-out-of-consciousness. The analytical psychist believes in the existence of consciousness-without-an-object. Both are, if the views here advocated be sound, attributing independent existence to that which, so far as human knowledge is concerned, has only dependent or relative existence.

It is unfortunate that the terms "real" and "reality" should ever have been applied to the independent existence of so-called things-in-themselves. I think such terms as Dr. Stoney's "autic" and "autic existence" would be far preferable. For the word "real" has a meaning and force which is quite definite. The orange that I hold in my hand and see with my eyes is as real as real can be. And if a philosopher steps in and says, "My dear sir, *that* is not real! The real reality is, according to some, mind-stuff or consciousness; according to others, motion of—well I don't quite know what, so let us simply call it motion; and according to others this real reality is unknowable"—I say if a philosopher steps in and talks like this, one is reminded of Lamb's remark on Coleridge. Coleridge had been maundering on, as was his wont, on "subject" and "object" and all the rest of his second-hand German metaphysics, when Lamb broke in, with his forcible stammer, in a stage whisper: "N-n-n-never mind C-c-c-coleridge; it's only his f-f-f-fun."

I repeat that the orange I hold in my hand and see with my eyes is as real as real can be; and that we have here the standard and criterion of reality not only for plain men but for philosophers. In the perceptual object we have reality given in its clearest, fullest, and most forcible form. Every step in the analysis of the perceptual object-in-consciousness; every step in the analysis of the consciousness-of-the-object takes us so far further from reality at its best. The orange as an object-in-consciousness is far more real to me than either the swift infinitesimal motions of the physicist, or the "syn-

theton" of related and integrated sensations of the psychologist. And when we reach the autic existence which is supposed to underlie both motion and consciousness, we seem to get just as far as it is possible for the human mind to get from the real orange with which we started. And yet it is to this autic existence that metaphysicians apply the term "real" in a different sense. For so far I have used the word "real" for that which is given in experience. But metaphysically the word "real" is used to indicate independence of experience. I repeat that for this independent existence some such word as Dr. Stoney's "autic" would be far better and less misleading. It would emphasise the distinction between *real*, that is to say given in direct experience, and *autic*, that is to say independent of experience.

Accepting at any rate for our present purpose this distinction, we have as coördinate realities the object-in-consciousness and the consciousness-of-the-object. And these two are only different aspects of the one great reality, the reality of experience. Of these two aspects neither is more real than the other. The object-in-consciousness is every bit as real as the consciousness-of-the-object; the orange as real as our perception thereof. Both are intensely and vitally real; but—here I am in opposition to Dr. Stoney—*neither is autic*. I can find no warranty for such autic existence in direct experience or the so-called deliverance of consciousness. Nor am I aware of any process of reasoning by which it can be demonstrated.

But, it may be said, is it not in accordance with scientific method to make an assumption and then see how far such assumption is justified by the results it enables us to reach? Assuredly such procedure is allowable and often fruitful. It is not on such grounds, however, that Dr. Stoney, if I rightly understand him, bases his doctrine of the psychical nature of *auta*. Let us, nevertheless, pay a moment's attention to this assumption and the correlative assumption of analytic materialism. Consciousness and matter-in-motion (or bare motion perhaps) are the ultimate elements reached by the psychologist on the one hand and the physicist on the other. Neither, if he knows his business, pretends by this analysis to have reached autic existence. But it is open to each to make an assumption. The

materialist says: I assume that motion is the true autic existence, of which, under appropriate conditions, human consciousness is merely a psychical aspect. The psychist says: I assume that consciousness is the true autic existence, of which motion is merely the phenomenal aspect. I confess that if I were forced to choose one of these two, (which fortunately I am not,) I should elect to throw in my lot with the materialists. For if justification by results is to be the criterion, I hold that the results the materialists have to show far outweigh any results which the analytic psychists can produce. But the fact of the matter is that in neither case do the results flow from the autic assumption. All the results are equally valid for the student who holds fast to the relativity of object-in-consciousness to consciousness-of-the-object. Since therefore the assumption is valueless so far as practical results are concerned, and since it is somewhat repugnant to sound reason to assume that either term of a given relationship is the same out of relationship as it is in relation to its fellow, I contend, as against both materialist and psychist, that it fails to make good its claim to acceptance.

What shall we say then of *auta* or *things in themselves?* Simply that we do not know anything about them—that they are outside the pale of human knowledge. If we even say they exist we are using the word "exist" in an autic and unreal sense. It is phenomenal Nature which constitutes the real Universe; of-its autic *shadow*, supposing that there be such a *shadow*, we know nothing. Need we then stay to criticise this unknown *shadow*?

Even if we take Dr. Johnstone Stoney's hypothesis as it stands we find a marked distinction between the sense-compelling *auta* and the egoistic *auta*, or between the sense-compelling aspect of *auta* and the egoistic or perceptive aspect. How is this distinction to be explained and accounted for? I can see no answer to this question save that the distinction is a matter of experience. Why not, then, trust experience fully? Why go beyond it at all? Why not say that both the sense-compelling aspect and the perceptive aspect are part of the relation which is given in experience? If Dr. Stoney could only see his way to this concession and could be led to adopt scientific monism, which is based on relativity, he would still secure all

that is valuable in his hypothesis, and at the same time get rid of the difficulties which as it stands encumber it. But it would no longer be a doctrine of *auta*.

For scientific monism is not a doctrine of *auta* but a doctrine of phenomena—phenomena regarded not only in their physical but also in their psychological aspect. Unifying these two diverse aspects, it contends that the conscious organism is one and indivisible; that it is a product of evolution; that in its physical or material aspect this evolution has given rise to the body and brain; that in its psychical or immaterial aspect it has given rise to the mind and human consciousness; that these two aspects, though distinguishable in analytic thought, are inseparable in phenomenal existence; that just as the complex modes of energy of the human brain have been evolved from the simpler modes of energy that are found throughout organic and inorganic nature, so too the complex modes of consciousness of the human mind have been evolved from the simpler modes of infra-consciousness* that are associated with merely organic and inorganic modes of energy. The last clause is admittedly hypothetical. But it is submitted that the hypothesis is one that is founded on strictly scientific and in no sense metaphysical or autic analysis.

C. Lloyd Morgan.

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* See *Mental Evolution* in *The Monist*, Vol. II, No. 2 (Jan. 1892), p. 161.

EVOLUTIONARY LOVE.

AT FIRST BLUSH. COUNTER-GOSPELS.

PHILOSOPHY, when just escaping from its golden pupa-skin, mythology, proclaimed the great evolutionary agency of the universe to be Love. Or, since this pirate-lingo, English, is poor in such-like words, let us say Eros, the exuberance-love. Afterwards, Empedocles set up passionate-love and hate as the two coördinate powers of the universe. In some passages, kindness is the word. But certainly, in any sense in which it has an opposite, to be senior partner of that opposite, is the highest position that love can attain. Nevertheless, the ontological gospeller, in whose days those views were familiar topics, made the One Supreme Being, by whom all things have been made out of nothing, to be cherishing-love. What, then, can he say to hate? Never mind, at this time, what the scribe of the apocalypse, if he were John, stung at length by persecution into a rage unable to distinguish suggestions of evil from visions of heaven, and so become the Slanderer of God to men, may have dreamed. The question is rather what the sane John thought, or ought to have thought, in order to carry out his idea consistently. His statement that God is love seems aimed at that saying of Ecclesiastes that we cannot tell whether God bears us love or hatred. "Nay," says John, "we can tell, and very simply! We know and have trusted the love which God hath in us. God is love." There is no logic in this, unless it means that God loves all men. In the preceding paragraph, he had said, "God is light and in him is no darkness at all." We are to understand, then, that as darkness is merely the defect of light, so hatred and evil are mere imperfect stages of

ἀγάπη and *ἀγαθόν*, love and loveliness. This concords with that utterance reported in John's Gospel: "God sent not the Son into the world to judge the world; but that the world should through him be saved. He that believeth on him is not judged: he that believeth not hath been judged already . . . And this is the judgment, that the light is come into the world, and that men loved darkness rather than the light." That is to say, God visits no punishment on them; they punish themselves, by their natural affinity for the defective. Thus, the love that God is, is not a love of which hatred is the contrary; otherwise Satan would be a coördinate power; but it is a love which embraces hatred as an imperfect stage of it, an Anteros—yea, even needs hatred and hatefulness as its object. For self-love is no love; so if God's self is love, that which he loves must be defect of love; just as a luminary can light up only that which otherwise would be dark. Henry James, the Swedenborgian, says: "It is no doubt very tolerable finite or creaturely love to love one's own in another, to love another for his conformity to one's self: but nothing can be in more flagrant contrast with the creative Love, all whose tenderness *ex vi termini* must be reserved only for what intrinsically is most bitterly hostile and negative to itself." This is from "Substance and Shadow: an Essay on the Physics of Creation." It is a pity he had not filled his pages with things like this, as he was able easily to do, instead of scolding at his reader and at people generally, until the physics of creation was wellnigh forgot. I must deduct, however, from what I just wrote: obviously no genius could make his every sentence as sublime as one which discloses for the problem of evil its everlasting solution.

The movement of love is circular, at one and the same impulse projecting creations into independency and drawing them into harmony. This seems complicated when stated so; but it is fully summed up in the simple formula we call the Golden Rule. This does not, of course, say, Do everything possible to gratify the egoistic impulses of others, but it says, Sacrifice your own perfection to the perfectionment of your neighbor. Nor must it for a moment be confounded with the Benthamite, or Helvetian, or Beccarian motto, Act for the greatest good of the greatest number. Love is not di-

rected to abstractions but to persons; not to persons we do not know, nor to numbers of people, but to our own dear ones, our family and neighbors. "Our neighbor," we remember, is one whom we live near, not locally perhaps, but in life and feeling.

Everybody can see that the statement of St. John is the formula of an evolutionary philosophy, which teaches that growth comes only from love, from—I will not say self-*sacrifice*, but from the ardent impulse to fulfil another's highest impulse. Suppose, for example, that I have an idea that interests me. It is my creation. It is my creature; for as shown in last July's *Monist*, it is a little person. I love it; and I will sink myself in perfecting it. It is not by dealing out cold justice to the circle of my ideas that I can make them grow, but by cherishing and tending them as I would the flowers in my garden. The philosophy we draw from John's gospel is that this is the way mind develops; and as for the cosmos, only so far as it yet is mind, and so has life, is it capable of further evolution. Love, recognising germs of loveliness in the hateful, gradually warms it into life, and makes it lovely. That is the sort of evolution which every careful student of my essay "The Law of Mind," must see that *synechism* calls for.

The nineteenth century is now fast sinking into the grave, and we all begin to review its doings and to think what character it is destined to bear as compared with other centuries in the minds of future historians. It will be called, I guess, the Economical Century; for political economy has more direct relations with all the branches of its activity than has any other science. Well, political economy has its formula of redemption, too. It is this: Intelligence in the service of greed ensures the justest prices, the fairest contracts, the most enlightened conduct of all the dealings between men, and leads to the *summum bonum*, food in plenty and perfect comfort. Food for whom? Why, for the greedy master of intelligence. I do not mean to say that this is one of the legitimate conclusions of political economy, the scientific character of which I fully acknowledge. But the study of doctrines, themselves true, will often temporarily encourage generalisations extremely false, as the study of physics has encouraged necessitarianism. What I say, then, is that

the great attention paid to economical questions during our century has induced an exaggeration of the beneficial effects of greed and of the unfortunate results of sentiment, until there has resulted a philosophy which comes unwittingly to this, that greed is the great agent in the elevation of the human race and in the evolution of the universe.

I open a handbook of political economy,—the most typical and middling one I have at hand,—and there find some remarks of which I will here make a brief analysis. I omit qualifications, sops thrown to Cerberus, phrases to placate Christian prejudice, trappings which serve to hide from author and reader alike the ugly nakedness of the greed-god. But I have surveyed my position. The author enumerates "three motives to human action:

The love of self;

The love of a limited class having common interests and feelings with one's self;

The love of mankind at large."

Remark, at the outset, what obsequious title is bestowed on greed,—"the love of self." Love! The second motive *is* love. In place of "a limited class" put "certain persons," and you have a fair description. Taking "class" in the old-fashioned sense, a weak kind of love is described. In the sequel, there seems to be some haziness as to the delimitation of this motive. By the love of mankind at large, the author does not mean that deep, subconscious passion that is properly so called; but merely public-spirit, perhaps little more than a fidget about pushing ideas. The author proceeds to a comparative estimate of the worth of these motives. Greed, says he, but using, of course, another word, "is not so great an evil as is commonly supposed . . . Every man can promote his own interests a great deal more effectively than he can promote any one else's, or than any one else can promote his." Besides, as he remarks on another page, the more miserly a man is, the more good he does. The second motive "is the most dangerous one to which society is exposed." Love is all very pretty: "no higher or purer source of human happiness exists." (Ahem!) But it is a "source of enduring

injury," and, in short, should be overruled by something wiser. What is this wiser motive? We shall see.

As for public spirit, it is rendered nugatory by the "difficulties in the way of its effective operation." For example, it might suggest putting checks upon the fecundity of the poor and the vicious; and "no measure of repression would be too severe," in the case of criminals. The hint is broad. But unfortunately, you cannot induce legislatures to take such measures, owing to the pestiferous "tender sentiments of man towards man." It thus appears, that public-spirit, or Benthamism, is not strong enough to be the effective tutor of love, (I am skipping to another page,) which must therefore be handed over to "the motives which animate men in the pursuit of wealth," in which alone we can confide, and which "are in the highest degree beneficent."* Yes, in the "highest degree" without exception are they beneficent to the being upon whom all their blessings are poured out, namely, the Self, whose "sole object," says the writer in accumulating wealth is his individual "sustenance and enjoyment." Plainly, the author holds the notion that some other motive might be in a higher degree beneficent even for the man's self to be a paradox wanting in good sense. He seeks to gloze and modify his doctrine; but he lets the perspicacious reader see what his animating principle is; and when, holding the opinions I have repeated, he at the same time acknowledges that society could not exist upon a basis of intelligent greed alone, he simply pigeon-holes himself as one of the eclectics of inharmonious opinions. He wants his mammon flavored with a *soupçon* of god.

The economists accuse those to whom the enunciation of their atrocious villainies communicates a thrill of horror of being *sentimentalists*. It may be so: I willingly confess to having some tincture of sentimentalism in me, God be thanked! Ever since the French Revolution brought this leaning of thought into ill-repute,—and not altogether undeservedly, I must admit, true, beautiful, and good as

* How can a writer have any respect for science, as such, who is capable of confounding with the scientific propositions of political economy, which have nothing to say concerning what is "beneficent," such brummagem generalisations as this?

that great movement was,—it has been the tradition to picture sentimentalists as persons incapable of logical thought and unwilling to look facts in the eyes. This tradition may be classed with the French tradition that an Englishman says *godam* at every second sentence, the English tradition that an American talks about "Britishers," and the American tradition that a Frenchman carries forms of etiquette to an inconvenient extreme, in short with all those traditions which survive simply because the men who use their eyes and ears are few and far between. Doubtless some excuse there was for all those opinions in days gone by; and sentimentalism, when it was the fashionable amusement to spend one's evenings in a flood of tears over a woeful performance on a candle-litten stage, sometimes made itself a little ridiculous. But what after all is sentimentalism? It is an *ism*, a doctrine, namely, the doctrine that great respect should be paid to the natural judgments of the sensible heart. This is what sentimentalism precisely is; and I entreat the reader to consider whether to contemn it is not of all blasphemies the most degrading. Yet the nineteenth century has steadily contemned it, because it brought about the Reign of Terror. That it did so is true. Still, the whole question is one of *how much*. The reign of terror was very bad; but now the Gradgrind banner has been this century long flaunting in the face of heaven, with an insolence to provoke the very skies to scowl and rumble. Soon a flash and quick peal will shake economists quite out of their complacency, too late. The twentieth century, in its latter half, shall surely see the deluge-tempest burst upon the social order,—to clear upon a world as deep in ruin as that greed-philosophy has long plunged it into guilt. No post-thermidorian high jinks then!

So a miser is a beneficent power in a community, is he? With the same reason precisely, only in a much higher degree, you might pronounce the Wall Street sharp to be a good angel, who takes money from heedless persons not likely to guard it properly, who wrecks feeble enterprises better stopped, and who administers wholesome lessons to unwary scientific men, by passing worthless checks upon them,—as you did, the other day, to me, my millionaire Master in glomery, when you thought you saw your way to using

my process without paying for it, and of so bequeathing to your children something to boast of their father about,—and who by a thousand wiles puts money at the service of intelligent greed, in his own person. Bernard Mandeville, in his "Fable of the Bees," maintains that private vices of all descriptions are public benefits, and proves it, too, quite as cogently as the economist proves his point concerning the miser. He even argues, with no slight force, that but for vice civilisation would never have existed. In the same spirit, it has been strongly maintained and is to-day widely believed that all acts of charity and benevolence, private and public, go seriously to degrade the human race.

The "Origin of Species" of Darwin merely extends politico-economical views of progress to the entire realm of animal and vegetable life. The vast majority of our contemporary naturalists hold the opinion that the true cause of those exquisite and marvellous adaptations of nature for which, when I was a boy, men used to extol the divine wisdom is that creatures are so crowded together that those of them that happen to have the slightest advantage force those less pushing into situations unfavorable to multiplication or even kill them before they reach the age of reproduction. Among animals, the mere mechanical individualism is vastly reënforced as a power making for good by the animal's ruthless greed. As Darwin puts it on his title-page, it is the struggle for existence; and he should have added for his motto: Every individual for himself, and the Devil take the hindmost! Jesus, in his sermon on the Mount, expressed a different opinion.

Here, then, is the issue. The gospel of Christ says that progress comes from every individual merging his individuality in sympathy with his neighbors. On the other side, the conviction of the nineteenth century is that progress takes place by virtue of every individual's striving for himself with all his might and trampling his neighbor under foot whenever he gets a chance to do so. This may accurately be called the Gospel of Greed.

Much is to be said on both sides. I have not concealed, I could not conceal, my own passionate predilection. Such a confession will probably shock my scientific brethren. Yet the strong feeling

is in itself, I think, an argument of some weight in favor of the agapastic theory of evolution,—so far as it may be presumed to bespeak the normal judgment of the Sensible Heart. Certainly, if it were possible to believe in agapasm without believing it warmly, that fact would be an argument against the truth of the doctrine. At any rate, since the warmth of feeling exists, it should on every account be candidly confessed ; especially since it creates a liability to one-sidedness on my part against which it behooves my readers and me to be severally on our guard.

SECOND THOUGHTS. IRENICA.

Let us try to define the logical affinities of the different theories of evolution. Natural selection, as conceived by Darwin, is a mode of evolution in which the only positive agent of change in the whole passage from moner to man is fortuitous variation. To secure advance in a definite direction chance has to be seconded by some action that shall hinder the propagation of some varieties or stimulate that of others. In natural selection, strictly so called, it is the crowding out of the weak. In sexual selection, it is the attraction of beauty, mainly.

The "Origin of Species" was published toward the end of the year 1859. The preceding years since 1846 had been one of the most productive seasons,—or if extended so as to cover the great book we are considering, *the* most productive period of equal length in the entire history of science from its beginnings until now. The idea that chance begets order, which is one of the corner-stones of modern physics (although Dr. Carus considers it "the weakest point in Mr. Peirce's system,") was at that time put into its clearest light. Quetelet had opened the discussion by his "Letters on the Application of Probabilities to the Moral and Political Sciences," a work which deeply impressed the best minds of that day, and to which Sir John Herschel had drawn general attention in Great Britain. In 1857, the first volume of Buckle's "History of Civilisation" had created a tremendous sensation, owing to the use he made of this same idea. Meantime, the "statistical method" had, under that very name, been applied with brilliant success to molecular physics. Dr.

John Herapath, an English chemist, had in 1847 outlined the kinetical theory of gases in his "Mathematical Physics"; and the interest the theory excited had been refreshed in 1856 by notable memoirs by Clausius and Krönig. In the very summer preceding Darwin's publication, Maxwell had read before the British Association the first and most important of his researches on this subject. The consequence was that the idea that fortuitous events may result in a physical law, and further that this is the way in which those laws which appear to conflict with the principle of the conservation of energy are to be explained, had taken a strong hold upon the minds of all who were abreast of the leaders of thought. By such minds, it was inevitable that the "Origin of Species," whose teaching was simply the application of the same principle to the explanation of another "non-conservative" action, that of organic development, should be hailed and welcomed. The sublime discovery of the conservation of energy by Helmholtz in 1847, and that of the mechanical theory of heat by Clausius and by Rankine, independently, in 1850, had decidedly overawed all those who might have been inclined to sneer at physical science. Thereafter a belated poet still harping upon "science peddling with the names of things" would fail of his effect. Mechanism was now known to be all, or very nearly so. All this time, utilitarianism,—that improved substitute for the Gospel,—was in its fullest feather; and was a natural ally of an individualistic theory. Dean Mansell's injudicious advocacy had led to mutiny among the bondsmen of Sir William Hamilton, and the nominalism of Mill had profited accordingly; and although the real science that Darwin was leading men to was sure some day to give a death-blow to the sham-science of Mill, yet there were several elements of the Darwinian theory which were sure to charm the followers of Mill. Another thing: anæsthetics had been in use for thirteen years. Already, people's acquaintance with suffering had dropped off very much; and as a consequence, that unlovely hardness by which our times are so contrasted with those that immediately preceded them, had already set in, and inclined people to relish a ruthless theory. The reader would quite mistake the drift of what I am saying if he were to understand me as wishing to suggest that any of those things

(except perhaps Malthus) influenced Darwin himself. What I mean is that his hypothesis, while without dispute one of the most ingenious and pretty ever devised, and while argued with a wealth of knowledge, a strength of logic, a charm of rhetoric, and above all with a certain magnetic genuineness that was almost irresistible, did not appear, at first, at all near to being proved; and to a sober mind its case looks less hopeful now than it did twenty years ago; but the extraordinarily favorable reception it met with was plainly owing, in large measure, to its ideas being those toward which the age was favorably disposed, especially, because of the encouragement it gave to the greed-philosophy.

Diametrically opposed to evolution by chance, are those theories which attribute all progress to an inward necessary principle, or other form of necessity. Many naturalists have thought that if an egg is destined to go through a certain series of embryological transformations, from which it is perfectly certain not to deviate, and if in geological time almost exactly the same forms appear successively, one replacing another in the same order, the strong presumption is that this latter succession was as predeterminate and certain to take place as the former. So, Nägeli, for instance, conceives that it somehow follows from the first law of motion and the peculiar, but unknown, molecular constitution of protoplasm, that forms must complicate themselves more and more. Kölliker makes one form generate another after a certain maturation has been accomplished. Weismann, too, though he calls himself a Darwinian, holds that nothing is due to chance, but that all forms are simple mechanical resultants of the heredity from two parents.* It is very noticeable that all these different sectaries seek to import into their science a mechanical necessity to which the facts that come under their observation do not point. Those geologists who think that the variation of species is due to cataclasmic alterations of climate or of the chemical constitution of the air and water are also making mechanical necessity chief factor of evolution.

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* I am happy to find that Dr. Carus, too, ranks Weismann among the opponents of Darwin, notwithstanding his flying that flag.

Evolution by sporting and evolution by mechanical necessity are conceptions warring against one another. A third method, which supersedes their strife, lies enwrapped in the theory of Lamarck. According to his view, all that distinguishes the highest organic forms from the most rudimentary has been brought about by little hypertrophies or atrophies which have affected individuals early in their lives, and have been transmitted to their offspring. Such a transmission of acquired characters is of the general nature of habit-taking, and this is the representative and derivative within the physiological domain of the law of mind. Its action is essentially dissimilar to that of a physical force; and that is the secret of the repugnance of such necessitarians as Weismann to admitting its existence. The Lamarckians further suppose that although some of the modifications of form so transmitted were originally due to mechanical causes, yet the chief factors of their first production were the straining of endeavor and the overgrowth superinduced by exercise, together with the opposite actions. Now, endeavor, since it is directed toward an end, is essentially psychical, even though it be sometimes unconscious; and the growth due to exercise, as I argued in my last paper, follows a law of a character quite contrary to that of mechanics.

Lamarckian evolution is thus evolution by the force of habit.—That sentence slipped off my pen while one of those neighbors whose function in the social cosmos seems to be that of an Interrupter, was asking me a question. Of course, it is nonsense. Habit is mere inertia, a resting on one's oars, not a propulsion. Now it is energetic projaculation (lucky there is such a word, or this untried hand might have been put to inventing one) by which in the typical instances of Lamarckian evolution the new elements of form are first created. Habit, however, forces them to take practical shapes, compatible with the structures they affect, and in the form of heredity and otherwise, gradually replaces the spontaneous energy that sustains them. Thus, habit plays a double part; it serves to establish the new features, and also to bring them into harmony with the general morphology and function of the animals and plants to which they belong. But if the reader will now kindly give himself the trouble of turning back a page or two, he will see that this account of Lamarckian evo-

lution coincides with the general description of the action of love, to which, I suppose, he yielded his assent.

Remembering that all matter is really mind, remembering, too, the continuity of mind, let us ask what aspect Lamarckian evolution takes on within the domain of consciousness. Direct endeavor can achieve almost nothing. It is as easy by taking thought to add a cubit to one's stature, as it is to produce an idea acceptable to any of the Muses by merely straining for it, before it is ready to come. We haunt in vain the sacred well and throne of Mnemosyne; the deeper workings of the spirit take place in their own slow way, without our connivance. Let but their bugle sound, and we may then make our effort, sure of an oblation for the altar of whatsoever divinity its savor gratifies. Besides this inward process, there is the operation of the environment, which goes to break up habits destined to be broken up and so to render the mind lively. Everybody knows that the long continuance of a routine of habit makes us lethargic, while a succession of surprises wonderfully brightens the ideas. Where there is a motion, where history is a-making, there is the focus of mental activity, and it has been said that the arts and sciences reside within the temple of Janus, waking when that is open, but slumbering when it is closed. Few psychologists have perceived how fundamental a fact this is. A portion of mind abundantly commissured to other portions works almost mechanically. It sinks to the condition of a railway junction. But a portion of mind almost isolated, a spiritual peninsula, or *cul-de-sac*, is like a railway terminus. Now mental commissures are habits. Where they abound, originality is not needed and is not found; but where they are in defect, spontaneity is set free. Thus, the first step in the Lamarckian evolution of mind is the putting of sundry thoughts into situations in which they are free to play. As to growth by exercise, I have already shown, in discussing "Man's Glassy Essence," in last October's *Monist*, what its *modus operandi* must be conceived to be, at least, until a second equally definite hypothesis shall have been offered. Namely, it consists of the flying asunder of molecules, and the reparation of the parts by new matter. It is, thus, a sort of reproduction. It takes place only during exercise, because the activ-

ity of protoplasm consists in the molecular disturbance which is its necessary condition. Growth by exercise takes place also in the mind. Indeed, that is what it is to *learn*. But the most perfect illustration is the development of a philosophical idea by being put into practice. The conception which appeared, at first, as unitary, splits up into special cases; and into each of these new thought must enter to make a practicable idea. This new thought, however, follows pretty closely the model of the parent conception; and thus a homogeneous development takes place. The parallel between this and the course of molecular occurrences is apparent. Patient attention will be able to trace all these elements in the transaction called learning.

Three modes of evolution have thus been brought before us; evolution by fortuitous variation, evolution by mechanical necessity, and evolution by creative love. We may term them *tychastic* evolution, or *tychasm*, *anancastic* evolution, or *anancasm*, and *agapastic* evolution, or *agapasm*. The doctrines which represent these as severally of principal importance, we may term *tychasticism*, *anancasticism*, and *agapasticism*. On the other hand the mere propositions that absolute chance, mechanical necessity, and the law of love, are severally operative in the cosmos, may receive the names of *tychism*, *anancism*, and *agapism*.

All three modes of evolution are composed of the same general elements. Agapasm exhibits them the most clearly. The good result is here brought to pass, first, by the bestowal of spontaneous energy by the parent upon the offspring, and, second, by the disposition of the latter to catch the general idea of those about it and thus to subserve the general purpose. In order to express the relation that tychasm and anancasm bear to agapasm, let me borrow a word from geometry. An ellipse crossed by a straight line is a sort of cubic curve; for a cubic is a curve which is cut thrice by a straight line; now a straight line might cut the ellipse twice and its associated straight line a third time. Still the ellipse with the straight line across it would not have the characteristics of a cubic. It would have, for instance, no contrary flexure, which no true cubic wants; and it would have two nodes, which no true cubic has. The geom-

eters say that it is a *degenerate* cubic. Just so, tychasm and anancasm are degenerate forms of agapasm.

Men who seek to reconcile the Darwinian idea with Christianity will remark that tychastic evolution, like the agapastic, depends upon a reproductive creation, the forms preserved being those that use the spontaneity conferred upon them in such wise as to be drawn into harmony with their original, quite after the Christian scheme. Very good! This only shows that just as love cannot have a contrary, but must embrace what is most opposed to it, as a degenerate case of it, so tychasm is a kind of agapasm. Only, in the tychastic evolution progress is solely owing to the distribution of the napkin-hidden talent of the rejected servant among those not rejected, just as ruined gamesters leave their money on the table to make those not yet ruined so much the richer. It makes the felicity of the lambs just the damnation of the goats, transposed to the other side of the equation. In genuine agapasm, on the other hand, advance takes place by virtue of a positive sympathy among the created springing from continuity of mind. This is the idea which tychasticism knows not how to manage.

The anancasticist might here interpose, claiming that the mode of evolution for which he contends agrees with agapasm at the point at which tychasm departs from it. For it makes development go through certain phases, having its inevitable ebbs and flows, yet tending on the whole to a foreordained perfection. Bare existence by this its destiny betrays an intrinsic affinity for the good. Herein, it must be admitted, anancasm shows itself to be in a broad acception a species of agapasm. Some forms of it might easily be mistaken for the genuine agapasm. The Hegelian philosophy is such an anancasticism. With its revelatory religion, with its synechism (however imperfectly set forth), with its "reflection," the whole idea of the theory is superb, almost sublime. Yet, after all, living freedom is practically omitted from its method. The whole movement is that of a vast engine, impelled by a *vis a tergo*, with a blind and mysterious fate of arriving at a lofty goal. I mean that such an engine it *would* be, if it really worked; but in point of fact, it is a Keely motor. Grant that it really acts as it professes to act, and

there is nothing to do but accept the philosophy. But never was there seen such an example of a long chain of reasoning,—shall I say with a flaw in every link?—no, with every link a handful of sand, squeezed into shape in a dream. Or say, it is a pasteboard model of a philosophy that in reality does not exist. If we use the one precious thing it contains, the idea of it, introducing the tychism which the arbitrariness of its every step suggests, and make that the support of a vital freedom which is the breath of the spirit of love, we may be able to produce that genuine agapasticism, at which Hegel was aiming.

A THIRD ASPECT. DISCRIMINATION.

In the very nature of things, the line of demarcation between the three modes of evolution is not perfectly sharp. That does not prevent its being quite real; perhaps it is rather a mark of its reality. There is in the nature of things no sharp line of demarcation between the three fundamental colors, red, green, and violet. But for all that they are really different. The main question is whether three radically different evolutionary elements have been operative; and the second question is what are the most striking characteristics of whatever elements have been operative.

I propose to devote a few pages to a very slight examination of these questions in their relation to the historical development of human thought. I first formulate for the reader's convenience the briefest possible definitions of the three conceivable modes of development of thought, distinguishing also two varieties of anancasm and three of agapasm. The tychastic development of thought, then, will consist in slight departures from habitual ideas in different directions indifferently, quite purposeless and quite unconstrained whether by outward circumstances or by force of logic, these new departures being followed by unforeseen results which tend to fix some of them as habits more than others. The anancastic development of thought will consist of new ideas adopted without foreseeing whither they tend, but having a character determined by causes either external to the mind, such as changed circumstances of life, or internal to the mind as logical developments of ideas already ac-

cepted, such as generalisations. The agapastic development of thought is the adoption of certain mental tendencies, not altogether heedlessly, as in tychasm, nor quite blindly by the mere force of circumstances or of logic, as in anancasm, but by an immediate attraction for the idea itself, whose nature is divined before the mind possesses it, by the power of sympathy, that is, by virtue of the continuity of mind; and this mental tendency may be of three varieties, as follows. First, it may affect a whole people or community in its collective personality, and be thence communicated to such individuals as are in powerfully sympathetic connection with the collective people, although they may be intellectually incapable of attaining the idea by their private understandings or even perhaps of consciously apprehending it. Second, it may affect a private person directly, yet so that he is only enabled to apprehend the idea, or to appreciate its attractiveness, by virtue of his sympathy with his neighbors, under the influence of a striking experience or development of thought. The conversion of St. Paul may be taken as an example of what is meant. Third, it may affect an individual, independently of his human affections, by virtue of an attraction it exercises upon his mind, even before he has comprehended it. This is the phenomenon which has been well called the *divination* of genius; for it is due to the continuity between the man's mind and the Most High.

Let us next consider by means of what tests we can discriminate between these different categories of evolution. No absolute criterion is possible in the nature of things, since in the nature of things there is no sharp line of demarcation between the different classes. Nevertheless, quantitative symptoms may be found by which a sagacious and sympathetic judge of human nature may be able to estimate the approximate proportions in which the different kinds of influence are commingled.

So far as the historical evolution of human thought has been tychastic, it should have proceeded by insensible or minute steps; for such is the nature of chances when so multiplied as to show phenomena of regularity. For example, assume that of the native-born white adult males of the United States in 1880, one fourth part

were below 5 feet 4 inches in stature and one fourth part above 5 feet 8 inches. Then by the principles of probability, among the whole population, we should expect

216	under	4	feet	6	inches,	216	above	6	feet	6 inches.
48	"	4	"	5	"	48	"	6	"	7 "
9	"	4	"	4	"	9	"	6	"	8 "
less than 2	"	4	"	3	"	less than 2	"	6	"	9 "

I set down these figures to show how insignificantly few are the cases in which anything very far out of the common run presents itself by chance. Though the stature of only every second man is included within the four inches between 5 feet 4 inches and 5 feet 8 inches, yet if this interval be extended by thrice four inches above and below, it will embrace all our 8 millions odd of native-born adult white males (of 1880), except only 9 taller and 9 shorter.

The test of minute variation, if *not* satisfied, absolutely negatives tychasm. If it *is* satisfied, we shall find that it negatives anancasm but not agapasm. We want a positive test, satisfied by tychasm, only. Now wherever we find men's thought taking by imperceptible degrees a turn contrary to the purposes which animate them, in spite of their highest impulses, there, we may safely conclude, there has been a tychastic action.

Students of the history of mind there be of an erudition to fill an imperfect scholar like me with envy edulcorated by joyous admiration, who maintain that ideas when just started are and can be little more than freaks, since they cannot yet have been critically examined, and further that everywhere and at all times progress has been so gradual that it is difficult to make out distinctly what original step any given man has taken. It would follow that tychasm has been the sole method of intellectual development. I have to confess I cannot read history so; I cannot help thinking that while tychasm has sometimes been operative, at others great steps covering nearly the same ground and made by different men independently, have been mistaken for a succession of small steps, and further that students have been reluctant to admit a real entitative "spirit" of an age or of a people, under the mistaken and unscrutinised impression that they should thus be opening the door to wild and unnatural

hypotheses. I find, on the contrary, that, however it may be with the education of individual minds, the historical development of thought has seldom been of a tychastic nature, and exclusively in backward and barbarising movements. I desire to speak with the extreme modesty which befits a student of logic who is required to survey so very wide a field of human thought that he can cover it only by a reconnaisance, to which only the greatest skill and most adroit methods can impart any value at all; but, after all, I can only express my own opinions and not those of anybody else; and in my humble judgment, the largest example of tychasm is afforded by the history of Christianity, from about its establishment by Constantine, to, say, the time the of Irish monasteries, an era or eon of about 500 years. Undoubtedly the external circumstance which more than all others at first inclined men to accept Christianity in its loveliness and tenderness, was the fearful extent to which society was broken up into units by the unmitigated greed and hard-heartedness into which the Romans had seduced the world. And yet it was that very same fact, more than any other external circumstance, that fostered that bitterness against the wicked world of which the primitive Gospel of Mark contains not a single trace. At least, I do not detect it in the remark about the blasphemy against the Holy Ghost, where nothing is said about vengeance, nor even in that speech where the closing lines of Isaiah are quoted, about the worm and the fire that feed upon the "carcasses of the men that have transgressed against me." But little by little the bitterness increases until in the last book of the New Testament, its poor distracted author represents that all the time Christ was talking about having come to save the world, the secret design was to catch the entire human race, with the exception of a paltry 144000, and souse them all in brimstone lake, and as the smoke of their torment went up for ever and ever, to turn and remark, "There is no curse any more." Would it be an insensible smirk or a fiendish grin that should accompany such an utterance? I wish I could believe St. John did not write it; but it is his gospel which tells about the "resurrection unto condemnation,"—that is of men's being resuscitated just for the sake of torturing them;—and, at any rate, the Revelation is a

very ancient composition. One can understand that the early Christians were like men trying with all their might to climb a steep declivity of smooth wet clay; the deepest and truest element of their life, animating both heart and head, was universal love; but they were continually, and against their wills, slipping into a party spirit, every slip serving as a precedent, in a fashion but too familiar to every man. This party feeling insensibly grew until by about A. D. 330 the lustre of the pristine integrity that in St. Mark reflects the white spirit of light was so far tarnished that Eusebius, (the Jared Sparks of that day,) in the preface to his History, could announce his intention of exaggerating everything that tended to the glory of the church and of suppressing whatever might disgrace it. His Latin contemporary Lactantius is worse, still; and so the darkling went on increasing until before the end of the century the great library of Alexandria was destroyed by Theophilus,* until Gregory the Great, two centuries later, burnt the great library of Rome, proclaiming that "Ignorance is the mother of devotion," (which is true, just as oppression and injustice is the mother of spirituality,) until a sober description of the state of the church would be a thing our not too nice newspapers would treat as "unfit for publication." All this movement is shown by the application of the test given above to have been tychastic. Another very much like it on a small scale, only a hundred times swifter, for the study of which there are documents by the library-full, is to be found in the history of the French Revolution.

Anancastic evolution advances by successive strides with pauses between. The reason is that in this process a habit of thought having been overthrown is supplanted by the next strongest. Now this next strongest is sure to be widely disparate from the first, and as often as not is its direct contrary. It reminds one of our old rule of making the second candidate vice-president. This character, therefore, clearly distinguishes anancasm from tychasm. The character which distinguishes it from agapasm is its purposelessness. But external and internal anancasm have to be examined separately.

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* See *Draper's History of Intellectual Development*, chap. x.

Development under the pressure of external circumstances, or cataclasmine evolution, is in most cases unmistakable enough. It has numberless degrees of intensity, from the brute force, the plain war, which has more than once turned the current of the world's thought, down to the hard fact of evidence, or what has been taken for it, which has been known to convince men by hordes. The only hesitation that can subsist in the presence of such a history is a quantitative one. Never are external influences the only ones which affect the mind, and therefore it must be a matter of judgment for which it would scarcely be worth while to attempt to set rules, whether a given movement is to be regarded as principally governed from without or not. In the rise of medieval thought, I mean scholasticism and the synchronistic art developments, undoubtedly the crusades and the discovery of the writings of Aristotle were powerful influences. The development of scholasticism from Roscellin to Albertus Magnus closely follows the successive steps in the knowledge of Aristotle. Prantl thinks that that is the whole story, and few men have thumbed more books than Carl Prantl. He has done good solid work, notwithstanding his slap-dash judgments. But we shall never make so much as a good beginning of comprehending scholasticism until the whole has been systematically explored and digested by a company of students regularly organised and held under rule for that purpose. But as for the period we are now specially considering, that which synchronised the Romanesque architecture, the literature is easily mastered. It does not quite justify Prantl's dicta as to the slavish dependence of these authors upon their authorities. Moreover, they kept a definite purpose steadily before their minds, throughout all their studies. I am, therefore, unable to offer this period of scholasticism as an example of pure external anancasm, which seems to be the fluorine of the intellectual elements. Perhaps the recent Japanese reception of western ideas is the purest instance of it in history. Yet in combination with other elements, nothing is commoner. If the development of ideas under the influence of the study of external facts be considered as external anancasm,—it is on the border between the external and the internal forms,—it is, of course, the principal thing in modern learning. But Whewell, whose masterly

comprehension of the history of science critics have been too ignorant properly to appreciate, clearly shows that it is far from being the overwhelmingly preponderant influence, even there.

Internal anancasm, or logical groping, which advances upon a predestined line without being able to foresee whither it is to be carried nor to steer its course, this is the rule of development of philosophy. Hegel first made the world understand this; and he seeks to make logic not merely the subjective guide and monitor of thought, which was all it had been ambitioning before, but to be the very mainspring of thinking, and not merely of individual thinking but of discussion, of the history of the development of thought, of all history, of all development. This involves a positive, clearly demonstrable error. Let the logic in question be of whatever kind it may, a logic of necessary inference or a logic of probable inference, (the theory might perhaps be shaped to fit either,) in any case it supposes that logic is sufficient of itself to determine what conclusion follows from given premises; for unless it will do so much, it will not suffice to explain why an individual train of reasoning should take just the course it does take, to say nothing of other kinds of development. It thus supposes that from given premises, only one conclusion can logically be drawn, and that there is no scope at all for free choice. That from given premises only one conclusion can logically be drawn, is one of the false notions which have come from logicians' confining their attention to that Nantucket of thought, the logic of non-relative terms. In the logic of relatives, it does not hold good.

One remark occurs to me. If the evolution of history is in considerable part of the nature of internal anancasm, it resembles the development of individual men; and just as 33 years is a rough but natural unit of time for individuals, being the average age at which man has issue, so there should be an approximate period at the end of which one great historical movement ought to be likely to be supplanted by another. Let us see if we can make out anything of the kind. Take the governmental development of Rome as being sufficiently long and set down the principal dates.

B. C. 753, Foundation of Rome.
B. C. 510, Expulsion of the Tarquins.
B. C. 27, Octavius assumes title Augustus.
A. D. 476, End of Western Empire.
A. D. 962, Holy Roman Empire.
A. D. 1453, Fall of Constantinople.

The last event was one of the most significant in history, especially for Italy. The intervals are 243, 483, 502, 486, 491 years. All are rather curiously near equal, except the first which is half the others. Successive reigns of kings would not commonly be so near equal. Let us set down a few dates in the history of thought.

B. C. 585, Eclipse of Thales. Beginning of Greek philosophy.
A. D. 30, The crucifixion.
A. D. 529, Closing of Athenian schools. End of Greek philosophy.
A. D. 1125, (Approximate) Rise of the Universities of Bologna and Paris.
A. D. 1543, Publication of the "De Revolutionibus" of Copernicus. Beginning of Modern Science.

The intervals are 615, 499, 596, 418, years. In the history of metaphysics, we may take the following:

B. C. 322, Death of Aristotle.
A. D. 1274, Death of Aquinas.
A. D. 1804, Death of Kant.

The intervals are 1595 and 530 years. The former is about thrice the latter.

From these figures, no conclusion can fairly be drawn. At the same time, they suggest that perhaps there may be a rough natural era of about 500 years. Should there be any independent evidence of this, the intervals noticed may gain some significance.

The agapastic development of thought should, if it exists, be distinguished by its purposive character, this purpose being the development of an idea. We should have a direct agapic or sympathetic comprehension and recognition of it, by virtue of the continuity of thought. I here take it for granted that such continuity of thought has been sufficiently proved by the arguments used in my paper on the "Law of Mind" in *The Monist* of last July. Even if those arguments are not quite convincing in themselves, yet if they

are reënforced by an apparent agapasm in the history of thought, the two propositions will lend one another mutual aid. The reader will, I trust, be too well grounded in logic to mistake such mutual support for a vicious circle in reasoning. If it could be shown directly that there is such an entity as the "spirit of an age" or of a people, and that mere individual intelligence will not account for all the phenomena, this would be proof enough at once of agapasticism and of synechism. I must acknowledge that I am unable to produce a cogent demonstration of this; but I am, I believe, able to adduce such arguments as will serve to confirm those which have been drawn from other facts. I believe that all the greatest achievements of mind have been beyond the powers of unaided individuals; and I find, apart from the support this opinion receives from synechistic considerations, and from the purposive character of many great movements, direct reason for so thinking in the sublimity of the ideas and in their occurring simultaneously and independently to a number of individuals of no extraordinary general powers. The pointed Gothic architecture in several of its developments appears to me to be of such a character. All attempts to imitate it by modern architects of the greatest learning and genius appear flat and tame, and are felt by their authors to be so. Yet at the time the style was living, there was quite an abundance of men capable of producing works of this kind of gigantic sublimity and power. In more than one case, extant documents show that the cathedral chapters, in the selection of architects, treated high artistic genius as a secondary consideration, as if there were no lack of persons able to supply that; and the results justify their confidence. Were individuals in general, then, in those ages possessed of such lofty natures and high intellect? Such an opinion would break down under the first examination.

How many times have men now in middle life seen great discoveries made independently and almost simultaneously! The first instance I remember was the prediction of a planet exterior to Uranus by Leverrier and Adams. One hardly knows to whom the principle of the conservation of energy ought to be attributed, although it may reasonably be considered as the greatest discovery

science has ever made. The mechanical theory of heat was set forth by Rankine and by Clausius during the same month of February, 1850; and there are eminent men who attribute this great step to Thomson.* The kinetical theory of gases, after being started by John Bernoulli and long buried in oblivion, was reinvented and applied to the explanation not merely of the laws of Boyle, Charles, and Avogadro, but also of diffusion and viscosity, by at least three modern physicists separately. It is well known that the doctrine of natural selection was presented by Wallace and by Darwin at the same meeting of the British Association; and Darwin in his "Historical Sketch" prefixed to the later editions of his book shows that both were anticipated by obscure forerunners. The method of spectrum analysis was claimed for Swan as well as for Kirchhoff, and there were others who perhaps had still better claims. The authorship of the Periodical Law of the Chemical Elements is disputed between a Russian, a German, and an Englishman; although there is no room for doubt that the principal merit belongs to the first. These are nearly all the greatest discoveries of our times. It is the same with the inventions. It may not be surprising that the telegraph should have been independently made by several inventors, because it was an easy corollary from scientific facts well made out before. But it was not so with the telephone and other inventions. Ether, the first anæsthetic, was introduced independently by three different New England physicians. Now ether had been a common article for a century. It had been in one of the pharmacopœias three centuries before. It is quite incredible that its anæsthetic property should not have been known; it was known. It had probably passed from mouth to ear as a secret from the days of Basil Valentine; but for long it had been a secret of the Punchinello kind. In New England, for many years, boys had used it for amusement. Why then had it not been put to its serious use? No reason can be given, except that the motive to do so was not strong enough. The motives to doing so could only have been desire for gain and philanthropy. About 1846, the

* Thomson, himself, in his article *Heat* in the *Encyclopedia Britannica*, never once mentions the name of Clausius.

date of the introduction, philanthropy was undoubtedly in an unusually active condition. That sensibility, or sentimentalism, which had been introduced in the previous century, had undergone a ripening process, in consequence of which, though now less intense than it had previously been, it was more likely to influence unreflecting people than it had ever been. All three of the ether-claimants had probably been influenced by the desire for gain; but nevertheless they were certainly not insensible to the agapic influences.

I doubt if any of the great discoveries ought, properly, to be considered as altogether individual achievements; and I think many will share this doubt. Yet, if not, what an argument for the continuity of mind, and for agapasticism is here! I do not wish to be very strenuous. If thinkers will only be persuaded to lay aside their prejudices and apply themselves to studying the evidences of this doctrine, I shall be fully content to await the final decision.

CHARLES S. PEIRCE.

RENAN.

A DISCOURSE GIVEN AT SOUTH PLACE CHAPEL, LONDON, OCTOBER, 9, 1892.

"Be calm and resigned," said Renan to his weeping wife. "We undergo the laws of that nature of which we are manifestations. We perish, we disappear, but heaven and earth remain, and the march of time goes on for ever."

It is hard to-day to respond to these last words of the dying philosopher. Heaven and earth remain, but they seem cold and grey when the great heart in which they were united has ceased to beat, and when our sweet English singer has gone silent. By the passing away of the two highest-mounted minds in Europe this society is especially bereaved. The earliest welcome given to the genius of young Tennyson came from the pen of William Johnston Fox, the first Minister of this Chapel; here has his spiritual pilgrimage been followed, and its songs here sung as hymns. But for their magnitude Tennyson and Renan might have been considered together. They were children of the same spiritual epoch; the son of the Catholic Church, and the English Rector's son, were fellow-pilgrims on the painful road of scepticism; they encountered the same phantoms, were attended by the same mighty shades, and found no altar but such as their own genius could raise and their glowing hearts kindle in the wilderness of doubt and denial. Alike they distrusted democracy, and dreamed of the ideal monarch,—as of Arthur, "flower of kings," whom ancient legends of Britain and Brittany said would some day return to lead up the Golden Year. Renan loved to tell the story of how Tennyson, roaming in Brittany, stopped at an inn

in Lannier, birthplace of Renan's mother. In the morning the poet demanded his account, but the hostess said, "There is nothing to pay, Monsieur. It is you who have sung of our King Arthur."

But the people have a greatness of their own. They enshrine Tennyson in Westminster Abbey, Renan in the Pantheon. The career of Renan is a triumph of republican France. Under the Empire he was deprived of his professorship, and of his office in the Imperial Library, for writing the "Life of Jesus." But the Republic made him President of the College of France, gave him every honor, in life as in death. The national homage to that ex-priest, that outspoken rationalist, who flattered not the masses nor fawned on power, is a high water-mark of civilisation. For it marks the rise of a steady tide of liberty, and not the mere leap of waves under some tempest of momentary emotion. The great fact is that this unique heretic, thinker, and scholar, has been able, without compromising his independence, without help of any sect or school, to live his life, think his thought, and round out his life-work with completeness, on the scene of a thousand martyrdoms.

In Renan's "Feuilles Détachées," which appeared last spring but is not yet translated, there are outbursts of gratitude to his time, which, he says, has been good to him, and pardoned many faults. He had just finished, he says, his "History of the People of Israel"—"the serious work of my life."

> "The bridge which it remained to me to build between Judaism and Christianism is built. . . . In the 'Life of Jesus' I tried to exhibit the majestic growth of the Galilean tree from the stock of its roots to the summit, where sing the birds of heaven. In the volume just finished I have sought to make known the subsoil in which shot the roots of Jesus. Thus my principal duty is accomplished. At the Academy the work on the Rabbins also nears conclusion, and the *Corpus Inscriptionum Semiticorum* is in excellent hands. So that now, having paid all my debts, I am free enough to amuse myself a little, and without scruples to indulge myself with the pleasure of gathering these leaves, often light enough."

So radiant was the author, at sixty-nine, having achieved the main schemes of a life which, at forty, was threatened with ruin by intolerance. Of course it was but a small part of what he would fain have accomplished. Last year (September 11) there was a fes-

tival in the Island of Bréhat, where Renan was the chief speaker. In the course of his address he said:

"Every year I used to come hither with my mother to visit my aunt Périne, who loved me much, for she thought me like my father. Here on your rocks, and in your paths, I formed plans and dreamed dreams, of which I have realised a third or a quarter. That is much; I consider myself fortunate; I hold myself among the privileged ones of life. I have been more sad than now, for I feared I might die young (misfortune notably not arrived) and never produce what was in my mind. Oh certainly, could I live a long time yet, I would know what to do. I have schemes of work for three or four lives. I would write a history of the French Revolution, showing it an attack of fever, grand, strange, horrible, and sublime; the foundation, let us hope of something better. I would compose a history of Athens, almost day by day; also a history of science and freethought, telling by what steps man has come to know something of how the world is made; I would write a history of Brittany in six volumes. I would study Chinese, and review critically all the problems of Chinese history and literature. Of all that I would make nothing. There is a crowd of things I wish to know and shall never know. But why reproach nature for refusing me? Let us recognise what she has given us. I have traversed the world at an interesting moment in its development, and, after all, have seen enough. After my time humanity will do surprising things: I can rest content during eternity."

The happiness of this venerable author, conscious that his life is closing, his work ended,—a happiness not derived from any hope of future reward, or even existence,—is a salient testimony of our time. In one of these recent addresses Renan says: "Let us die calmly, in the communion of humanity, the religion of the future." The dying Voltaire was fed with a wafer, even while he ridiculed it. Renan partakes the communion of humanity, the religion of the future. It may appear cold comfort to the superstitious, for they comprehend not that to such a man the communion of humanity implies an eternal life.

In one sense Renan lived not quite threescore years and ten; in another he lived ages on ages. By his mastery of Eastern and Oriental languages and literatures, by his studies of ancient and modern systems, he had familiarly dwelt among primitive tribes, with them set up their sacred dolmens, knelt at their altars, travelled with their migrations in India, Persia, Egypt, Syria, shared their pilgrimages from lower to higher beliefs, listened to their prophets, visited the

home of Mary and Joseph, walked with the disciples, conversed with Jesus, witnessed the crucifixion, journeyed through the middle ages, reached the Renaissance, passed through Protestantism, gathered every spiritual flower of the nineteenth century. Such long experience of the past, such knowledge of the attractions of humanity,—predicting its fulfilments,—carry the thinker equally far into the future. Knowing the angles of convergence in time's rising pyramid, he can calculate the apex, and look down from it. He is able to rejoice in realisations of ideals now mere tendencies. His immortality is present. Such to Renan meant that communion of humanity, into which he entered by patient studies, and by the devotion of his life to the spiritual essence of the world. And this vision sustained him in his last hour.

And let me here say, that Renan's optimism was not based in any belief in a superhuman providence, or any dynamic or compulsory destiny in nature. It was his faith in the heart and brain of man. In his last work he reminds youth that their efforts at new abstractions and theologies are idle: the new notions will follow the old into extinction. "Dear children," he says—

"Dear children, it is useless to give yourself so much headache to reach only a change of error. Let us die calm, in the communion of humanity, the religion of the future. The existence of the world is assured for a long time. The future of science is guaranteed, for in the great scientific book everything adds itself and nothing is lost. Error is not deep; no error lasts long. Be tranquil. Before a thousand years, let us hope, the earth will find means to supply its exhausted coal, and, in some degree, its diminished virtue. The resources of humanity are infinite. Eternal works accomplish themselves without loss to the fountain of living forces, ever rising again to the surface. Science, above all, will continue to astonish us by its revelations, substituting the infinite of time and space for a poor creationism that can no longer satisfy the imagination of a child. Religion also is true to the infinite. When God shall be complete, he will be just. I am convinced that virtue will find itself one day clearly to have been the better part. The merit is in affirming duty against the apparent evidences. [As for the future] denying not, affirming not, let us hope. Let us keep a place at our funerals for the music and the incense."

It will be seen that Renan's deity is the brother of man's divinity. God is as dependent on man as man on God. Natural evil is God's incompleteness: when man is complete God will be complete: there will be no more injustice.

But I must warn you that while this is the way in which Renan impresses me, he is not a man to be caught or held in any one theory. He is the many-sided man of our time. When I heard his lectures in his college, two years ago,—his French was so clear and expressive that even a limping listener could follow him tolerably,—he impressed me as a sort of Buddha. Buddha is supposed by some to have got his large form by sitting so long in contemplation, by others his size is regarded as a protest against the meagreness of ill-fed ascetics. The unfurrowed serenity of Buddha's face, his infantine smile, were those of Renan, also the remembered music of his voice. This association has been extended to Renan's spiritual nature by a letter of his to a friend, in his "Feuilles Détachées." He is fascinated by the legends of Buddha and Krishna which describe them as multiplying themselves. When Buddha was born into this world, ten thousand women entreated to be his nurses, and Buddha multiplied himself into ten thousand babies. Each woman believed that she alone had nursed the true Buddha. In the legend of the god Krishna, he first appeared to some shepherdesses who were dancing. The beautiful god multiplied himself into as many forms as there were maidens, so that each believed that she alone had danced with Krishna, and through life kept her heart sacred to him. Writing of these legends, Renan says:

"The ideal loses nothing by dividing itself: it is entire in each of its parts. We live that part of Krishna which we assimilate according to our genius. The ideal is for all partakers, like morsels modified to each taste. Each creates his divine dancer. One refinement I would introduce into the legend of Krishna, should I ever make it into a drama, or, better, a philosophic ballet: at the time when the shepherdesses believed they were singly dancing with Krishna, he should find that they were in reality dancing with different Krishnas. Each had made her Krishna to her fancy, and when they came to describe to each other their heavenly lover, they should find their visions in nowise alike; and nevertheless to each it was always Krishna."

The legend which thus charmed Renan has many correspondences in religious history; in Christianity, for instance, where we to-day find a hundred and fifty sects, each believing that it alone has the true Christ for partner. But it applies to all great personalities, and to all spiritual influences. The finest spirits frame no

systems, found no schools. They are akin to the sun and rain which nourish and paint innumerable and diverse growths. It was so with Emerson. Dean Stanley said that he heard many different preachers in America, but their sermons were generally by Emerson. It was preëminently the case with Renan. The Catholic, the Protestant, the idealist, the sceptic, the man of the world, the mystic, the conservative, the radical, provided they are unsophisticated like the shepherdesses, not champions of some sect or party, find that Renan has spoken better for them than they can for themselves; he knows their secret heart, is their partner by unbounded sympathies. Yet it is always the same Renan, full and entire in each and all of his manifestations.

Some time ago, when his friend Littré, the Positivist, was buried by his family with Catholic rites, the aspersoir passed round the grave, and came to Renan, who, like the rest, sprinkled holy water on the coffin. There were cries of "Shame" among the freethinkers present; but really it was the act of a man less sectarian than themselves. The same tenderness that could not wound the family parting for ever from their beloved, is visible in the gentleness with which he treats old beliefs, when it is a question of affection or sentiment, not of dogma and authority. They have died out of his mind utterly; he sees the creeds already in their graves; he no longer fears them, but is glad to soothe those who cling to their lifeless forms by speaking kindly of their virtues in the past. His "Life of Jesus" is, in large part, a wreath of immortelles laid on the tomb of a faith to him utterly dead,—that is, faith in a supernatural Christ. He once told me of a little island on the coast of his native Brittany, from which some medieval saint was supposed to have driven monstrous serpents, or worms. To that island the peasants still repair to get a little of the soil to use as a—vermifuge. To similarly small size had shrunk, in Renan's view, the greatest dogmas and superstitions of Christendom. Others might still compliment them with fear and wrath, but Renan was tender to them because of their smallness. He was endlessly good-natured with his ignorant opponents, from whom he often received warning letters. Of one who wrote him simply the words, *Remember, there is a Hell*, he said that this

monitor did not terrify him as much as he may have supposed. He (Renan) would be rather glad to know for certain that there was beyond the grave even a hell. And if he should go there he felt certain that he would be able to address to the deity such subtle arguments to prove that he ought not to remain there, but to be transferred to paradise, (only he feared his exhorter's paradise would be very dull,) that he would presently be released.

One purpose of the "Life of Jesus" has been mentioned, but that work had also another and a higher aim. With a love like that of Mary Magdalene, in whose rapt vision Jesus rose from the tomb, to be transformed into a supernatural Christ, Renan sought to raise out of the grave of that supernatural Christ the human Jesus. He had travelled through Palestine, visited every spot associated with the great teacher, and drew the most realistic portraiture he could of the parents, home, friends, disciples, and daily life of Jesus. The outcry against that book was a confession by theology of its utter loss of the human personality of Jesus. There had been a time when the religious heart loved to dwell on the sweet humanities of Jesus. In the seventeenth century the poet, Thomas Dekker, wrote:

> "The best of men
> That e'er wore earth about him was a sufferer;
> A soft, meek, patient, humble, tranquil spirit,
> The first true gentleman that ever breathed."

And such remembrance of Jesus, in his life among the people, his friendships, smiles and tears, are found in the sermons of Tillotson, South, Jeremy Taylor. But the descended God gradually consumed the humanity. In the last century it became a heresy to consider Jesus as a man. The man was crucified on a cross of dogmas; he lay dead and buried under a stony theology, until Renan rolled away the stone, raised him to life, clothed him with flesh and blood, invested him with beauty, and said once more to the Pharisee, the sceptic, the scoffer—*Behold the man!* For writing that book,—just after Strauss had shown the Christ of Christendom a mythological figure,—the churches should have clasped Renan's knees. But for it they heaped him with abuse, declared that Jewish bankers had bribed him to write it, drove him from his professorship of Hebrew,

reduced him to poverty. The Pope denounced him as "The European Blasphemer." He has been terribly avenged in his own country, where every educated man has abandoned the church. And he lived to see the Christianity of England striving to gain a new hold on the people by following his brave gesture,—rationalising away the supernatural Christ, and exalting the humanity of Jesus as the sign of his divinity. The criticism of that work is not at all so destructive as that of many who have written in the generation that has elapsed since its appearance,—of Dr. Martineau, for instance, on whom Oxford has conferred a doctor's degree. Indeed, in reading Renan's "Life of Jesus" now, one is surprised by its concessions. He accepts the four Gospels as coming from the first century, a belief which even the learned theologians have abandoned. Some newspaper has said that Renan borrowed from Strauss; on the contrary, the fault of the book is that it did not borrow from Strauss, and from English authors, who had proved that the Gospels are all of the second century. That would have relieved him of the necessity of apologising for Jesus in some matters of which Jesus never heard, of which Paul in the first century knew nothing, as when he intimates that Jesus may have once lent himself to an amiable deception. No miracle was ever ascribed to Jesus by any writer of his own century. In several other respects Renan's "Life of Jesus," on its negative side, is behind the advance of research and criticism. But those are small details compared with the spirit and general purpose of the work. In this moment, when we are celebrating the discovery of a western world, we may well pay homage to the scholar who rediscovered and exhumed an eastern world, long buried under débris of mythology and rubbish of superstitions. This Renan has done in his series of works on the "Origins of Christianity," beginning with the "Life of Jesus," dealing with the "Apostles," with "St. Paul," with "Antichrist," and other studies, leading up to his "History of the People of Israel."

In all these works there is not a line that is not interesting, alike to learned and unlearned. As some one has said, Renan could make Hebrew roots blossom with roses and lilies. But that superfine art of his was carrying the cause of intellectual and religious

emancipation. For these works concerned the constitution of Europe. This Great Britain, with all its physical freedom, is religiously a mere dependency of Judea. Here men were formerly burnt, until lately imprisoned, and even now denied equal advantages, not in accordance with what Englishmen think, but with the opinions of some ancient Jews. The voice of the Jews was the voice of God. But Judea, like the Grand Llama, could rule only while veiled. Renan unveiled it. He did it all the more effectually because in the literary and philosophic spirit. All the ages of Judea, from the first tribal groups to the movement of John the Baptist and Jesus, are assigned their exact place as successive chapters of human history, the natural origin of their mythology is explained, Jehovah takes his seat beside Jupiter and Brahma, Jesus is revered with Buddha and Zoroaster; and all this is done, not by mere opinion, but by impregnable facts, unwearied researches, inflexible veracity. It was also done lovingly. A superstition can survive combat, but not explanation. Renan did much to remove Christianity from the field of militant camps to the quiet province of literary investigation. In the Republic of Letters there is no arbitrary authority. The combat is left to salvation armies,—"theirs not to reason why."

There is a large Renan literature. More than three hundred works represent the efforts of theology to get the resuscitated human Jesus back into his grave again. Renan's accessible life-work is represented by about twenty-five volumes, of which some are philosophic diversions written amid the heavy labours of his College, and while collecting and preserving for scholars the whole body of Semitic inscriptions. For more than twenty years Renan has been training the young scholars of France—those who are to fashion France in the future, and influence mankind. Those acquainted with his larger works can realise his immense service in elevating the standard of criticism, and establishing the method of exact research and exact thought. But there are other works of Renan, notably his *Philosophic Dramas*, not yet translated, from which may be better gathered the great variety of his ability, the poetic play of his genius, and the charm of his personality, which some of us have personally felt, and which so won all hearts that even the priesthood

have not raised discordant notes in the homage and emotion with which his nation has laid him in an honoured grave.

Farewell, great heart, and great leader! On your coffin I laid a wreath of immortelles for friendship, for the homage of America, and for the sake of this free English Society. For your victory is ours also: your triumph is that of every independent mind on earth.

MONCURE D. CONWAY.

INTUITION AND REASON.

THE question whether we act more frequently from intuition or reason, and the question that follows it, which faculty is the more noble guide to conduct, would have no more interest for the general public than any other of the subjects which the metaphysician exercises his ingenuity upon,—than the question, for instance, whether we execute a greater number of analytic or of synthetic judgments in the course of the day,—were it not that there is an ancient opinion to the effect that reason and intuition are marks respectively of the manner of working of men's and of women's minds. The opinion is wholly unfounded, and could only have had its origin at a time when the psychology of the working of the human mind was thoroughly misunderstood. As the very terms in which the opinion is expressed make plain, it dates from the period when it was the custom to speak of the human mind as having a lot of separate "faculties" under its control, and of calling up now one and now another of them to do its bidding. It is time that the belief in the different quality of men's and of women's minds should follow the whole antiquated machinery of "faculties" into the limbo of old and worn-out fashions of thought and of speech.

This illusion, however, like most of the illusions that have had a firm foot-hold in their day, has a perfectly comprehensible reason for its existence. It is not true that men's minds and women's minds have a different way of working; but it is true that upon certain occasions (and by far the greatest number of occasions) we all —men, women, and negroes alike—act from intuition, and that the circumstances of women's lives have hitherto been such as to make their interests lie somewhat more exclusively in those regions in which

conduct is intuitive than in those in which it is long thought out. It is not true that the Creator has made two separate kinds of mind for men and for women; but it is true that society, as at present constituted, offers two somewhat separate *fields of interest* for men and for women, and that the nature of their conduct is of necessity determined by the character of the action which is demanded of them.

What is the difference for the psychologist, between the mental state of a being who acts from reason, and of one who acts from intuition? It is not a difference of the *kind of mind* which controls him, but of the *kind of knowledge* upon which his present conduct is based. If one individual has got at his command a lot of general propositions bearing upon the case in hand, and if his familiarity with them is not such that they flow together without conscious effort, then he must laboriously piece them together, and think out the conclusions which they necessitate. If another individual, having led a different life, has had a lot of experiences which cover just such cases as this, and if he has been taught by thousands of instances that under these circumstances a certain course of conduct will nearly always lead to good results, then he can trust to his hands or his feet to execute that course of conduct without a moment's aid from conscious reflection; he can go on with his novel, or whatever other pleasant occupation engages his attention, without the wear and tear of mind which is involved in consciously thinking about the circumstances in question.

Now the differences in the mental processes of men and women are exactly of this nature. They are differences dependent upon the fact that the *knowledge* at their command—that is, the stored up premises upon which action is based—is, to a certain extent, of a different kind, and got from different sources. So far as the knowledge is not of a different kind, the character of the action is not of a different kind. There is an immense number of conclusions which men and women alike "jump at," every hour in the day; and some of them represent reasoning so fixedly instinctive, that even the closest attention does not enable us to drag it up into the light of consciousness. How many people know that a certain feeling of strain in the muscles which move the eyes is a sign of a certain dis-

tance of an object looked at, and a different feeling of strain, a sign of a different distance; and that when the eyes are fixed upon one point, objects in the lateral field of view are judged to be nearer or farther away than that point, according as the two disparate images which they cast upon the two retinas are, the right-hand one or the left hand one, the brighter? The common man *knows* that one object is near and the other far, but he is not *conscious* even of the feeling of strain, nor of the existence of double images; the physiological psychologist knows the unconscious syllogism by which he *must* reach his conclusion, but even he cannot, by any possibility, make it cease to be instinctive,—that is, make himself conscious of its different steps. On the other hand, no one, whether man or woman, can pass from one proposition in geometry to another by a process which is in any sense unconscious, though one person may be obliged to give a much more strained attention to what he is doing than another.

Now it is very possible that a greater *number* of the actions of women have their ground in unconscious causes than of the actions of men. The subjects upon which action is of vital concern to them have been different subjects, and hence their stored-up stock of knowledge is knowledge about different subjects. To the woman of the past, who was to a great extent confined to her own home, the temper of her house-mates was what her happiness depended upon more than anything else in the world. It was impossible that she should not acquire a keen intelligence in interpreting every slightest shade of expression upon the human face. But this sort of knowledge is always instinctive, whether it is practised by men or by women. If the eyes of the most reasonable man in the world should chance to show him a certain curve of the lip and a certain elevation of the posterior angle of the alæ of the nostrils on the face of the fair lady to whom he was talking, would he try to call to mind the pictures in Sir Charles Bell's great work on expression and the general theorems in Darwin's book on the same subject, and piecing this and that laboriously together, would he try to arrive at some just conclusion regarding the contents of the fair lady's mind? Would he not, rather, instinctively change the subject of conversa-

tion, or even discreetly beat a retreat, long before he had time to *think?* Women's interests have been so exclusively social that they have developed a sense for the physical expression of emotion which makes society for them a matter of complicated relations, of delicate susceptibility to play of feeling, which—except in the hyper-sensitive period of courtship—is not common among men. But there are men who are quite the equals of women in this respect; and if any man is markedly deficient in these qualities, we recognise him as belonging to a low and brutal type which is in process of extinction. If a woman on the other hand, goes into business, she does not fix the prices of her straw hats each morning in accordance with the feelings which straw hats awaken in her when she first looks at them, but in accordance with the fluctuations of the market. The President of a New Hampshire Street Railway did not carry through her improvements by her intuitions, but by a plain, common-sense weighing of reasons. Nor are all masculine occupations under the guidance of the reasoning faculty. If you go to a stove-man and ask him to mend your smoking chimney, does he do it by reason? Not a bit of it! There may be stove-men who have enough knowledge of the laws which regulate the movements of masses of hot air to be able to apply general principles to particular instances, but in the course of a long and checkered experience with stove-men, it has not been my lot to fall in with them. Their knowledge of chimneys, such as it is, is got by experience and applied by intuition, and nothing is farther from their minds than any trace of deductive reasoning. It is not that there are men's minds and women's minds, but that there are theoretical subjects and practical subjects, and that knowledge is not the same kind of knowledge in both.

Intuition, in the sense in which it is used when discussing male and female minds, is a word of double meaning: it covers those actions which we go through with by instinct, or inherited experience ingrained from the beginning in our nervous structure, and those which we perform automatically, or by individual experience become so familiar that it can act as a guide without the aid of conscious reflection. The relative distances of objects looked at we know instinctively; the trained musician with mind intent upon ex-

pression, reads his notes automatically; the beginner at the piano goes through a painful process of syllogism before each key is struck. All is, at bottom, reason; in one case it is conscious; in another it is unconscious, but can be forced into consciousness; in another, it is unconscious and cannot by any effort be made conscious. Because a woman's interests lie more than a man's in regions in which thought is instinctive and automatic, it does not follow that she has developed any peculiar powers of intuition. Nor is there any possibility that mothers should occasionally transmit their powers of intuition to favored sons, as Mr. Grant Allen, in the course of his apotheosis of the uneducated woman, has somewhere suggested; some men have poetic and æsthetic minds, and in regions of poetry and art mental activity is largely of the instinctive kind. It is different with powers of reasoning. Good powers of reasoning may be transmitted from mother to son, but that is merely saying metaphorically that a good firm texture of mind may be transmitted. Hume and James Mill are two men who are supposed to owe much to their mothers, but their peculiar powers are not usually considered to lie in regions of intuition. No mother has ever produced an intuitive mathematician. Nor would any one who knew anything about the higher mathematics for a moment suppose that when a great mathematician leaves out intermediate steps in a printed book, he had jumped at his conclusions by instinct. It is simply that, with his thorough knowledge of this particular subject, the intermediate steps have seemed to him too easy to set down. If his book is hard to read, it is simply because he has assumed a greater amount of learning in his readers than they are in possession of.

The question whether intuition or reason is the nobler faculty is an exceedingly meaningless question. All knowledge which finds frequent occasion to be put in practice has a tendency to become first automatic and then instinctive. Human progress consists in making conscious action automatic as soon as it can be done with safety, and in setting free consciousness to attend to more and more complicated combinations of circumstances. After the musician has learned to read his notes mechanically, shall we urge him to go back to the period of conscious linking of note to key, because rea-

son is a diviner gift than intuition? Is it desirable to turn the act of walking into a conscious fitting of muscular tension to variations in the position of the centre of gravity in order to distinguish ourselves the more effectually from the brutes that perish? Reason is merely intuition in its formative stage, and the sooner all our present reasoned convictions become mechanical, and conscious thought is set free to bring in more and more far reaching considerations to bear upon our actions (including in that term our conclusions), the sooner will a higher form of life be reached.

Wundt's students have made some experiments in his laboratory in the last two or three years, which throw a great deal of light upon this question,—they have caught automatism in the very act of formation. It has been noticed that different observers differed very much in the reaction time which they assigned to the several senses,—that is, the time required, for instance, to hear the tap of a bell, and to press a button in response. Wundt's students found that there are two different reaction times,—in one, time is taken to bring the tap of the bell into the focus of consciousness and to decide consciously what to do in response; in the other, the process is unconscious. The first is nearly twice as long as the second, and both are very constant quantities, for the same sense. The exact figures are, in seconds:

	FULL.	SHORT.	
Sound	.216	.127	N. Lange
"	.235	.121	Belkin
"	.230	.124	L. Lange
Light	.290	.172	L. Lange
"	.291	.182	Martius

It may be inferred from this that, even in the simplest matters intuition is very nearly twice as valuable a "faculty" as reason, as far as economy of time is concerned. (It would be interesting to determine the difference in fatigue.) But the interesting point is that the experimenter can teach himself to give either reaction time at his pleasure. If he thinks of his ears, he has a feeling of strain in them, and a long reaction time; if he directs his attention to his fingers (or if he thinks of indifferent matters) he is unconscious of

what is going on, and his reaction time is short. It is plain that the more of these educated brain-reflexes we can produce, the fuller and more complicated lives we shall be capable of carrying on. It may also be assumed that the ideal human being is the one who has many brain-reflexes, but who is capable of bringing them all into consciousness upon occasion. Connections that we cannot make conscious are a frequent source of illusion. When we move the eye-ball about by the will, objects seem to remain stationary; but when, putting the finger on the under eye-lid, we push the eye-ball up and down in the socket, we cannot help *perceiving* that objects are moving up and down. Prof. William James suggests as a good experiment that some one who has eyes that he is not afraid of injuring should do this pushing several hours a day, and see if he cannot force conscious reason to do her work and to make him *see* that the objects are not moving.

For perfectly regular circumstances,—that is, for the world of nature or of human character so far as is governed by fixed laws,—reflex action presents an immense economy of time and work. To provide against extraordinary emergencies, it would seem to be desirable that we should have the power of interposing consciousness in the chain which begins with stimulus and ends in action. Whenever a large number of considerations, or considerations of an abstract character, have to be weighed and balanced, then reason is the only sufficient guide.

That women have no deficiency in the power of putting this and that together, when *this* and *that* are pieces of knowledge which are in their possession, is absolutely proved by a single circumstance. Geometry is a branch of learning which is entirely built up out of abstract reason, pure and undefiled. Geometry is studied, in the United States, in high schools, and it must not be forgotten that there are in this country (according to the Report of the Bureau of Education) *three times* as many girls as boys who take the high school course. It cannot be said, therefore, (as is said of girls who go to college) that the girls who go to the high school are a selected lot; they are the very bone and fibre of the women who make up the country. Now if women could not reason, we ought to hear a

great hue and cry from the teachers of the geometry classes about the difficulty of teaching that subject to girls, and the girls ought to lament and moan over the impossibility of getting safely through with their demonstrations. Is this the case? I have never met with a teacher of geometry who thought his boys did better than his girls, —I have met with several who thought the reverse. As long ago as 1865, Her Majesty's Inspector of schools, after travelling through this country, said: "The teachers all tell me that the girls do fully as well as the boys in mathematics,—fully." Nor are any sad effects noticeable upon health or spirits. Day after day an army of girls goes smiling into the class-room and comes smiling out, utterly unaware that an unnatural wrench has been given to their delicate minds, and that they are being rapidly transformed into monstrous products of over-reason.

If girls show no defect in reason in the class-room, neither do boys show any defect in intuition,—in fact, their intuition about stretched strings and lines on balls are usually better than those of girls. I have kept a record for many years of errors committed by boys and by girls, and I have not been able to detect any difference in their character. It is true that it was a boy who once failed to get a problem in trigonometry for a week, because it was not expressly stated in the book that the milestones to which the problem related were a mile apart. My intimate acquaintance with the character of his mind prevented me, however, from attributing this failure in intuition to his superior reasoning powers.

The simple matter is that a good *mind* has good reasons and good intuitions both. Both qualities are summed up in the expressive popular phrase, "having your wits about you." If you are in full possession of your wits, you will trust to your instincts, when you must; to your acquired reflexes, when there is no sign of danger; and to your reason, when the question requires debate. It would be greatly for the good of the race if the common virtues should become more instinctive in men; and if women should be put into a position in which they can reflect more wisely upon the virtues which are only just in process of getting known to be such. The only reason that women do not guide themselves by far-reaching

principles in their every-day conduct, is that they have not made themselves acquainted with the doctrines of political economy and of abstract ethics. When women are in full possession of the higher education, there is no danger that they will not put it into practice, so far as it leads to practice. The human mind is so constituted that it cannot help taking account of all its knowledge. Propositions merely learned by rote, or the truth of which it is not absolutely convinced of, it may leave one side, but not what it really *knows*. Nor is there any danger that woman will lose her powers of intuition. The knowledge and skill which she has acquired in social matters will not desert her because she has made herself familiar with the speculations of philosophers, and can turn to them for guidance in the intricate questions of conduct which the complexities of modern life give rise to. So long as a woman's highest duty was to please her lord and master, her task was simple, but women are now awake to a sense of wider responsibilities. They are now aware that it is their highest duty *to be* the best possible kind of a human being, and *to do* whatever lies within their strength towards making the world the best possible kind of a world to live in. For this end they have urgent need of *all* the gifts that God has given them; and he who would cripple their reason on the ground that intuition is a pleasing and a poetic guide, would do them a grievous wrong.

CHRISTINE LADD FRANKLIN.

CRUELTY AND PITY IN WOMAN.

I.

CRUELTY.

SPENCER says* that among savage nations the women are as perverse as the men, and that if they do not work so much evil it is because they are less able to do so. This is not entirely true; doubtless women among savages are much more inclined to cruelty than to pity, but, generally speaking, woman even at the very beginnings of human evolution is less cruel than man.

WOMAN AND WAR.

Woman, even among savage nations, is rarely a warrior. In the Antilles, the women watched over the safety of the islands whenever their husbands went to war with the neighboring islands; they were brave, strong, courageous, nearly equalling the men in their cleverness in handling weapons.† Amongst the ancient Bretons, armies were always commanded by women. In Dahomey, the élite of the army is composed of a troop of six or seven thousand Amazons, who are very ferocious, particularly in the mutilation of dead bodies; women then become tigers, is a popular saying. Among the ancient Scots, women followed the army, and cruelly mutilated the prisoners. Among the Botocudos, when war breaks out between the tribes, the men fight the men with sticks, and the women fight the women, by scratching and by tearing the *botoques* (cylinders of wood) from their ears and lips.‡ But these are all exceptional cases.

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* Spencer. *Principles of Sociology*, II., p. 361.

† Irving. *Hist. of the Life and Voyages of Chris. Columbus*, II., p. 15.

‡ Hovelacque. *Les débuts de l'humanité.*

Generally speaking, the savage woman plays a secondary part in war; she acts as an auxiliary, picks up arrows, throws stones from a distance, and carries the provisions etc.

REVENGE.

It is above all in revenge, that feminine cruelty shows itself the most terrible. Man is capable of destroying whole families or nations, to satisfy a particular revenge; but nothing equals the ingenuity of woman, in slowly tormenting her victim, in gloating over his sufferings and lengthening them out in order that her enjoyment of vengeance may endure as long as possible.

In Tasmania, when the *black war* broke out between the English and the aborigines, the Tasmanian women terribly tortured the prisoners, in order to avenge their companions who had been carried off by the English. We must also attribute to the desire for vengeance, the torments inflicted by the women upon prisoners of war among the Red Indians.

Elizabeth of Russia, betrayed by her lover, obliged him to marry a deformed dwarf, and to pass his wedding night in an ice palace, where the furniture and the bed were all of ice. The next morning, attended by her Court, she went to present the newly wedded pair with a bouquet. She found them, stretched out upon their bed of ice, nearly frozen. She then banished her rival to Siberia first causing her ears and nose to be cut off.

A wealthy Russian Prince, in love with a very beautiful peasant girl of fifteen, took her to live with him for five years; at the end of which time, wishing to contract an alliance, he paid her a sum of money in dower and obliged her to marry a peasant. The young girl made no sign for ten years, until the death of her husband; but after the lapse of that period, a rising having taken place among the peasantry against the nobles, she excited them and led a body of peasants to the castle of her ancient lover, had him taken and dragged into his *izba*, harnessed him to the plough instead of the oxen, and for three days obliged him thus to work, lashing him with the whip each time that he fell to the ground. At night she led him to the stable and made him lie down with the oxen; compelling him

to eat fodder with the beasts and making merry over his sorry plight. This amusement lasted for three days, at the end of which time, the man fell dead in one of the furrows he was ploughing.*

A Russian, an idle and worthless fellow who had let his wife suffer hunger, proposed to her that she should be sold as a slave to the Sultan. After some hesitation, she accepted and they started off; but when they had gone about half the way, the husband having fallen asleep intoxicated, the idea came into her mind to sell him for a slave, in her place. She then tied him on the horse, started off again on the road and arriving at the place of rendezvous, she delivered her husband to the merchant, and remained to watch the Turk push the half-awakened man into the boat, laughing whilst he showered blows upon him.†

A young Russian peasant woman lived with a small land-owner, who betrayed her; at last she took refuge with a band of brigands, who treated her like a queen. One day she caused two of them to capture her old lover, and had him brought to the camp where she used him as a kind of living foot-stool: when she sat down she covered him with a carpet and put her feet upon him, and when she wanted to go out she made him carry her on his shoulders.

CRUELTY TO THE HELPLESS.

Woman sometimes displays the same amount of ingenuity in tormenting the helpless creatures who may be in her power. I do not know, says Bourgavel, any one more perfidious, immoral, or perverse than the New Caledonian woman. In certain portions of Australia women are mortal foes to each other. When the men wish to punish any one of them, they turn her over to her companions, who inflict upon her horrible tortures.‡ Sitting on her body, they cut her flesh with sharpened stones.

In Tasmania, as amongst the ancient Saxons, the unfaithful wife was punished by her companions; she was not killed, but

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* Sacher-Masoch. *Rev. des Deux Mondes.*
† Sacher-Masoch. Ibid.
‡ Letourneau. *Evolution de la Morale*, p. 122.

she was tortured for a long time with sharp pointed stones or knives, in all parts of her body.

Women have often been cruel mistresses to their slaves. A lady in Guiana, being envious of a very handsome mulatto slave, had her branded on the mouth, cheeks and forehead. In the case of another slave, who was also very beautiful, she had the tendon of Achilles cut thus causing her to become a deformed and crippled monster.*

It is a notorious fact that Roman and Greek ladies often inflicted most terrible punishments on their slaves, and that it was more particularly towards the female slaves, the *ancillæ*, that the cruelty of their mistresses was shown. The Roman ladies, if, while they were having their hair dressed, they were vexed with their attendants, used to thrust pins into their arms and breasts. Darwin relates that at Rio Janeiro, an old lady possessed a kind of thumb screw which she had had made expressly to crush the fingers of her slaves.

EPIDEMIC CRUELTY.

During periods of great national excitement, such as revolutions, feminine cruelty shows how far it can go.

The women, writes M. Du Camp, were the fiercest heroines of the Commune; it was a woman who incited the assassination of the Dominicans. When the hostages were shot, they surpassed the men in cruelty; they taunted them with not knowing how to kill. When employed to seek out the insurgents they were implacable; when acting as infirmarians, they killed the wounded by giving them brandy to drink.

At the time of the French Revolution, on the days of execution, writes M. Legouvé,† the front rows nearest the guillotine were reserved for the women of the political clubs. They even hung on to the boards of the scaffold, in order the better to witness the death throes of the condemned, and drowned the cries of the victims by their peals of laughter.

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* Mantegazza. *Fisiologia etc.* Milan. 1889.

† *Histoire morale des femmes.*

II.

PITY.

But again we find a series of contradictory facts, which bear witness that the sentiment of pity also is much keener in woman than in man.

Even with animals, we observe this phenomenon. Hens often separate two young cocks who are fighting together. Sir George Le Grand Jacob has observed females of the wild goat (Steinbock) raise with their heads he-goats that had been shot, support them and help them to escape. Romanes relates, that sometimes the female gibbon, takes great care of all the members of the troop when they are wounded, even if they are not related.*

The savage woman also is very often kind and good. It is notorious that the explorers of savage countries have often escaped serious perils, thanks to the kindness of the native women. Australasian women have often revealed to European travellers the plots laid against them by the men of their tribe: they have even risked their own lives for that purpose.† Stanley, at the island of Bambyrch, on the Nyanza, was roughly greeted by the natives, who were desirous of exterminating his expedition; but a woman came to warn him and to advise him to perform a certain ceremony with the King Shekka by which he would acquire his friendship. In Senegambia an old woman, meeting Mungo Park, who was half dead of starvation and had just been despoiled by a negro king, gave him food, and went away without waiting to be thanked. Another time the same traveller, being left with nothing but his saddle, was hospitably entertained by some women, whom he heard chant these words as he fell asleep: "The winds roared and the rain beat, the poor white man came and sat down under our tree, he had no mother to give him milk, no wife to grind him corn. Let us take pity on the white man, he has no mother, etc., etc." ‡ Michelet says that woman

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* Romanes. *Animal Intelligence,* Vol. II.

† Hovelacque. *Op. cit.*

‡ Letourneau. *La Sociologie d'après l'ethnographie.* Paris, 1884.

was the first physician; and certainly she fulfils the office of infirmarian among many savage peoples, the Esquimaux, the Mincopies, etc. etc.

In war the Samoan woman often interferes to make peace between the belligerents. Among the Khonds, also, when two tribes quarrel, the women sometimes make peace, calling in the intervention of a third tribe. Quite recently, among the Montenegrins and Albanians, fierce strife broke out between different families, but in these fights, if a man took refuge with a woman and she covered him with her apron, he was safe. Among the Bedouin Arabs a woman can save the life of the condemned man who implores her protection. So it also was among the Roman Vestals, when in the streets they accidentally met a man condemned to death; it was required, however, that the meeting should be evidently a chance one, for it was feared that the privilege might be carried too far. Among civilised nations this sentiment of pity becomes naturally more developed. Christianity owed a great deal of its success among women to the fact, that it knew how to make use of their pity, by organising those associations of women which are its greatest ornament. From the earliest years after the death of Jesus, in the cenobitic form of society lived by the disciples of the Messiah, they made use of the charitable sentiment of childless widows and created the order of Deaconesses, which was devoted to the care of the poor and the sick.* Legouvé says: "Women offered their services to Christianity like a volunteer batallion consecrated to charitable work. In the Apostles' time their mission was one of sympathy and watchfulness, a mother's vocation; in the time of the Martyrs they remained womanly in their modesty, while exhibiting a manly courage; in the time of the Doctors, whilst orators speak and learned men write, women continue to love and console."†

This Christian tradition has survived and is still powerful, thanks to the deeply laid sentiment of pity in the heart of woman. "Private charity in Paris," writes M. du Camp,‡ "is almost entirely

* Renan. *Les Apôtres.*
† Op. cit.
‡ *La charité privée à Paris*, 1887.

in the hands of women. There are in Paris women of the world, young and beautiful, born for pleasure, accustomed to every luxury, who visit the poor, nurse the sick, rock little motherless children, and all this they do simply without a word of self-praise.

The society of "Les Dames du Calvaire," in Paris, is composed of widows, who, without binding themselves by religious vows, engage to nurse the sick gathered into the hospitals of the association, poor outcasts attacked by loathsome diseases—cancer, for example. Women of wealth and belonging to great families often obtain admission to this society. Female religious orders are rarely contemplative; they are nearly always charitable in aim. "The Daughters of Charity" possess establishments all over the known world; they migrate, says M. du Camp, "like benevolent birds, carrying with them the principle of self-sacrifice and the love of those that suffer. In all countries I have visited, among sects most antagonistic to their religion, I have beheld them at work; their faces shadowed by the immense cap, which resembles the wings of a white swan; instructing children, visiting the sick, caring for the plague-stricken, blessed by our sailors whom they nurse in the French hospitals in foreign lands." *

Pity in woman is sometimes so powerful a sentiment that it supplies the place in her of a higher faculty, intelligence. It was thus that a humble servant-maid, without learning, who could neither read nor write, founded one of the most prominent nursing sisterhoods in France, "Les petites Soeurs des Pauvres," which to-day numbers 3,400 sisters, and possesses 207 houses, where more than 25,000 old men are received and cared for. In the first half of this century there was such misery in Brittany that the old men were literally abandoned by all. Jeanne Jugau, whose earnings hardly sufficed to maintain herself, took in one, then two, then a number of them, without a thought of her own poverty, slaving might and main for their support. Two women, Virginie Tredaniel and Marie Catherine, helped her; a priest, Le Pailleur, took the direction of their work, and in a short time the order was founded, and grew apace. There, where

* Op. cit.

genius might have failed, the love and pity of a servant-maid succeeded.

Another heroine of charity, though of a different type, was Jeanne Garnier. She was perpetually haunted by a desire to do good, to help and succour the unfortunate. M. du Camp has portrayed her character in a most graphic manner: impulsive, prone from childhood to adopt extreme measures, while in the convent she was given to rebellious and untractable conduct, for which she was sent away. When she was twenty years old she married; the love she bore her husband and two sons was deep and ardent. Three years after her marriage she had the unspeakable grief of losing both husband and sons at one fell stroke. After this occurrence her life had but one aim, ceaselessly and untiringly to succour and help the sorrowful. One day she was told that a woman, disfigured by a cutaneous disease, was lying in an attic in Lyons, abandoned by every one. She went at once to her, ministered to her, and every day went to wash her sores. Thus was suggested to her the founding of the association of "Les Dames du Calvaire," of which we have already spoken, and the idea of pressing into the service of the sick, widows who found themselves in the same position as herself. She was not rich, but being an untiring and determined worker, capable of attacking the same person ten times a day, she obtained money. When they had to convey the sick to the new hospital, there was among them one woman so horribly disfigured by burns that no conveyance could be found whose driver was willing to take her. Jeanne Garnier then took her on her own shoulders and carried her there herself. The association of "Les Dames du Calvaire" was not the only charitable work which owes its existence to her. She conceived a great many other plans, of which many were carried out, for she never ceased working, up to the moment of her death, which occurred at forty-two years of age, of exhaustion.

In the United States, where woman enjoys much greater freedom than in Europe, she makes an excellent use of her liberty. In fact, all associations of women have a charitable end in view; and these societies not being subjected to the severe rules of Catholic religious orders, and not requiring from their members so absolute a renuncia-

tion of the pleasures of life, exhibit the most perfect and most modern form of charitable associations, which have been known up to the present day. The first woman's club that was founded in that country, the Sorosis, has for its object the amelioration of the condition of shop-girls: it has also founded asylums for homeless children. The Temperance Union, founded by women, seeks to stem the tide of intemperance. The Women's League has obtained the admission of women on commissioners' boards for schools and hospitals. The College Settlement Girls, composed of female graduates from universities, carry help into the purlieus of the city.*

CRUELTY, PITY, AND THE MATERNAL SENTIMENT.

Is woman kind or cruel? Can we reconcile these two series of facts, so contradictory in themselves? That is the question which now comes before us. Let us seek, first of all, the origin and the genesis of feminine cruelty. We have seen women exhibiting great ingenuity in torturing; she does not wish to destroy her enemies, but to torment and torture them; she seeks to protract their pain as long as possible, and to lengthen out her enjoyment of vengeance. On this point woman goes much further than man: for among savages men do not amuse themselves by prolonging the miseries of their enemies; they rather wreak their vengeance by killing them at one stroke. Savages often make a wholesale carnage, massacring whole tribes and nations. But it is always the woman who practices the art of killing a man by inches, over a slow fire, as it were. Thus we find that the redskins give their prisoners of war over to their women. Notice, even at the present day, the difference between the quarrels of men and women. Women scratch each other, tear out the hair, fly at the eyes of their adversaries, trying to inflict some painful wound: men give blows and stabs; they strive to disable or stun their enemy, or to destroy him. There is the same difference but on a smaller scale. This aptitude in inflicting pain is an outgrowth of weakness. We know from the Darwinian theory of

* *The Forum.* 1891.

natural selection, and from the struggle for life, that every living being must be provided with a certain number of means of defense and offense, and amongst these means must be classed many instincts and sentiments which spring from natural selection, adaptation, and heredity. The cruelty of woman is one of these instincts and sentiments. Woman not being powerful enough to destroy her enemies, had to seek for the means of defending herself, by wounding their more delicate organs, by inflicting such acute pain as would serve to disable them. This tendency to protect one's self by such means has become instinctive by heredity; and so much the more since the woman who was able thus to defend herself, had at the outset of man's evolution a far better chance of survival.

All this is so true, that we find other weak creatures also to be cruel. Children take pleasure in tormenting insects, birds, or little dogs, and are very cruel to each other. I knew a child who used to cut his nails like the teeth of a saw, in order to inflict more painful scratches on his companions. Humming birds, says Brehm, are the smallest and the cruelest of birds. When they are attacked by a more powerful enemy they try to peck out his eyes with their long, sharp beaks. The struggle for life and natural selection has provided their weakness with this means of defense, and they are even cruel to each other when they fight, to such an extent has the sentiment of cruelty in them become instinctive.

And now we must seek for the genesis of the other phenomenon, pity. It is a notorious fact, that maternity being the great function of woman, through the whole order of animal life, with the exception of some few fishes, it is always the female who is thus the benefactress of the race. Maternity is always an altruistic function; in the inferior orders this altruism is a purely physical act, and consists merely in a material sacrifice; (the detaching of a portion of the maternal body, under the form of bud, or egg;) in the higher orders, this altruism becomes psychical and consists in a conscious sacrifice of self and of vitality in the interests of the race.

What then is the essential nature of these altruistic sacrifices? Maternity is protection given to weakness; for the infant is above all other created things a being requiring succour.

It is thus that, the images relating to the state of weakness being in great numbers strongly impressed on the mind of woman, when one of them presents itself to her, by the law of association it awakens all those maternal sentiments whose function it is to help the weak. At first, motherhood only extends from a woman's own children to those of others; this is the first stage of pity, such as we find it in the animals and among many undeveloped savage peoples. Afterwards in a region of higher psychical development the sentiment of pity broadens till it embraces a wider group, the sick, the aged, those condemned to death; for all those unfortunates who claim the pity of woman are the weak appealing for help to the strong. It is only the weak who can inspire pity. Thus pity, in woman, is but the outgrowth of the maternal sentiment applied to a larger class of helpless people. "Woman," says M. du Camp, "may bind herself by the religious vow of chastity; but she is a born mother and remains a mother, even though circumstances may have broken the physical law of her sex. The Little Sisters of the Poor, call their pensioners 'the good little old men,' and themselves 'the good little sisters,' their superior 'the good little mother.' With them everybody is good and little; all these expressions are the reflection of maternal love."

We must mention also, that one cause of a livelier sense of pity in woman, is her own weakness and her lower intellect. "Anger," writes A. Bain, "the passion for war, are bound up with activity and strength; conditions of weakness and of repose are favorable to the softer sentiments." Strong men who display great muscular or mental activity, and who often experience the satisfactions arising from power, only realise with extreme difficulty the feelings of the weak; for, as H. Spencer remarks,* "to feel pity for any suffering which we witness, we must have experienced it ourselves to the same extent or in an approximate degree." Thus healthy persons become, after a serious sickness, more feeling than they formerly were for those who are suffering; women are continually in a state of ill-health.

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* Spencer. *Principles of Psychology*, II, p. 648.

Besides which women have not been involved in the struggle for life, as have men during the whole process of evolution: this struggle for life implying, as it does, the necessity of pursuing one's own object irrespective of the ills which it may entail on the unhappy competitors, and often rendering a man insensible to the sorrows of those around him. To this we add, that love for man has not been without influence in developing the sense of pity in woman. The main characteristic of the love of woman towards man, is self-abnegation and devotion; woman finds her happiness in devotion to the man she loves and in making for him the most painful sacrifices. Read the "Letters of Heloise," the "Life of Carlyle," or the "Life of Mme. de Lespinasse." Each woman, carries hidden in her heart, an inexhaustible treasure of devotion which heredity has added to through all the centuries, during which woman has lived in contact with man and sought to win his good-will, displaying an affection and an ardent zeal in his behalf; nothing then is easier than to spend this treasure on the unhappy, when she has not found the man on whom to lavish it.

The close relationship between pity, maternity, and love, is also shown by this fact, that the heroines of charity are almost always widows without sons, or unmarried women. When a woman has a husband or sons to love and cherish, she does not feel the same tenderness towards the suffering; this goes to prove that if these two sentiments are interchangeable, they are but two different forms of the same thing.

PITY AND CRUELTY.

We are now in a position to answer the question: Is woman kind or cruel? Pity and cruelty coexist together in her; we might call this state in woman a state of unstable equilibrium: to-day she is kind, divinely good, charitable; to-morrow she will be perverse and cruel. On one side her feebleness renders her cruel, and her impulsive nature prevents her from repressing the outbursts of anger and of vengeance; on the other hand, the gentle habits of maternal affection, her lower intelligence, and even the weakness of her nature develop in her kindly sentiments. Woman may experience the

strongest feelings of maternal affection at the sight of a helpless creature; but that will not prevent her from cruelly persecuting a rival, especially if she has been wounded in her sentiments of wife or mother. Thus woman, who is the natural protector of the weak, treats them oftentimes with a cruelty of which man is totally incapable. Woman loves, hates, consoles, inflicts pain, according as she finds herself in the presence of a friend, an enemy, a helpless being, or of a rival.

Many of the fiercest heroines of the Paris Commune, had been trained nurses during the war, and distinguished for their devotion to the sick. There is nothing astonishing in this, for contradiction in feeling is so often a psychical law that a great Italian philosopher, Robert Ardigò, has said that man is not a logical being.

We have noticed before that weakness is in part the cause of cruelty and partly also of pity, and this accounts for the coexistence of the two contrary sentiments. They coexist because they have a common origin. But this instability of equilibrium is lessened by evolution, and pity becomes stronger than cruelty. Among civilised nations the cruelty of women has become merely a moral attitude: the civilised woman, less powerful than her savage sister, no more subjects her enemies to physical pain, does not shed their blood; she contents herself with slandering them, turning them into ridicule, and humiliating them. The diminution of muscular strength is in itself favorable to the softening of female character.

Furthermore, sexual selection also helps in this; in the human race as civilisation advances the male assumes more and more the right of selection, and man shrinks instinctively from meeting in a woman a high development of the qualities which he himself possesses, for he wishes to dominate her and to be her superior. This explains to us the singular fact, which we notice every day, that of a *savant* marrying a stupid or unintelligent wife; this is why the normal man, as also the vicious, choose gentle and good women when they desire to found families. If sometimes the choice falls on a wicked woman, it is because the man desires to form a criminal copartnership, such as was perhaps the normal condition of family life during the early days of human evolution. Many of the domestic

tragedies which we witness to-day can be traced to no other cause than this *penchant* of the male, even of the vicious, to choose the woman who appears to be the most gentle. Women with their clear penetration and sure instincts have seized upon this inclination in man and made capital out of it with infinite ability: do we not see many young women simulate a gentleness, a sweetness, and kindness which they do not naturally possess in order to capture the good-will of men? Women have thus practised the habit of repressing their evil *penchants*, through interested motives, because they saw that men chose the most gentle among them as wives.

Besides sexual selection, physical grace plays a conspicuous part, as well as those psychical qualities which are associated with it. Man having set a high value on graceful demeanour, woman sought and still seeks with all her strength to adorn herself with it.

We know that by the law of association between the emotional states and their outward expression, which mutually correspond, each gesture, each attitude, and each graceful expression of the countenance has a tendency to throw the mind into some sweet and peaceful condition; this is why the culture of physical grace has been for woman an exercise of goodness. This fostering of physical beauty has had a beneficial influence on her moral character. We might say that as woman grew in beauty, she became better. Finally woman being in the present day more respected than in former times, she has less often the occasion to exercise her instinctive cruelty, which on this account is being gradually obliterated. Pity each day becomes more and more the normal state of the feminine mind, and cruelty the exception. In order to be cruel, a woman's character must be perverted, as is the case in female criminals, whose vice exceeds that of man in similar circumstances. Or she must have received some deep provocation, wounding her profoundly in her deepest and tenderest sentiments, which has awakened the original cruelty slumbering latent in the depths of her heart.

We may thus predict that in the ages to come, woman will become entirely good.

GUILLAUME FERRERO.

PANPSYCHISM AND PANBIOTISM.

I. PROFESSOR HAECKEL'S PANPSYCHISM.

PROFESSOR HAECKEL, in his article "Our Monism,"* propounds the theory of Panpsychism, which he considers as an essential feature of Monism. He says:

"One highly important principle of my monism seems to me to be that I regard *all* matter as *ensouled*, that is to say, as endowed with feeling (pleasure and pain) and with motion, or, better, with the power of motion. As elementary (atomistic) attraction and repulsion these powers are asserted in every simplest chemical process, and on them is based also every other phenomenon, consequently also the highest developed soul-activity of man.

"Simplest example: sulphur and quicksilver rubbed together form cinnabar, a new body of entirely different properties. This is possible only on the supposition that the molecules (or atoms) of the two elements if brought within the proper distance, mutually *feel* each other, by attraction move toward each other; on the decomposition of a simple chemical compound the contrary takes place: repulsion. (Empedocles's doctrine of 'the love and hatred of atoms.')"

Not being able to accept Professor Haeckel's doctrine of Panpsychism, I propose what might best be called Panbiotism, briefly set forth in the maxim *πᾶν βιωτόν*; that is, everything is fraught with life; it contains life; it has the ability to live.

The word *βιωτός* is mostly used by Greek authors in the negative, as in the phrase *βίον οὐ βιωτόν*, an unlivable life, in the sense of a life unendurable or not worth living. Thus Sophocles and others. The word *βιωτός* is embodied in the term Panbiotism in its etymological sense of "livable."

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* *The Monist*, Vol. II, No. 4.

I am willing to concede to Professor Haeckel that all nature is alive. Indeed, I have most emphatically insisted on the doctrine that there is a spontaneity pervading all nature. (See "Fundamental Problems," 2d ed., pp. 110 et seqq.)

By spontaneity is to be understood that kind of activity which springs from the nature of the being or thing which is active. A motion that is caused by pressure or push is not spontaneous; but a motion, the motive power of which resides in the moving object, is spontaneous. Thus a cart rolling down a hill by its own weight performs a spontaneous motion, but when drawn by horses moves, or rather is moved, by pull without any spontaneity.* Now everything that exists is possessed of certain qualities; its existence is of some definite, peculiar kind, and this its peculiar kind is the character of the thing. In the character of a thing lies the source of its spontaneous actions. The spontaneous actions of the chemical elements depend upon their qualities, which always react under certain circumstances in a definite way, and under the same conditions in the same way. The action of sulphur and quicksilver lies in the nature of these elements. Their union is not passive, but active. They *are* not combined, but they *do* combine. He who observes and studies nature cannot be blind to the fact that an inalienable, intrinsic power is resident in every thing that exists. This is true not only of organised life, but also of the chemical elements as well as of gravitating masses. The motion of a falling stone can, no more than the actions of oxydising substances, be considered as ultimately due to an extraneous pressure that makes them move by push, or to a *vis a tergo* acting upon inert matter. These motions must be spontaneous; they are due to powers inherent in the nature of reality. They are self-motions, and in this sense we say that all nature is alive.

The term "life" is here used in a broader sense than ordinarily. It means spontaneity or self-motion, while in its common signification the term "life" is restricted only to the spontaneous action of

* Spontaneous motion (as here defined) does not mean action without a cause; nor does the spontaneity of the cart exclude the co-operation of other spontaneities (*e. g.* the attraction of the earth) entering as factors in bringing about the final result.

organised beings, i. e. of plants and animals. In order to distinguish life in the broader sense from the narrower or common acceptance of the term, we call the latter "organised life."

It is not impossible, and I consider it even as most probable, that the difference between Professor Haeckel and myself rests on a different usage of the term soul. But a vague or inconsistent usage of the term, unless we are especially careful in so defining it as to prevent misunderstandings, will inevitably beget errors. Thus the doctrine of Panpsychism is liable to lead to fantastic ideas, and to cause great confusion concerning the activity of what is generally called inanimate nature.

Soul (as I understand the term) is a system of sentient symbols.

The problem of the origin of the soul is solved as soon as we understand how feelings can acquire meaning.

Suppose we have some sentient substance exposed to the impressions of the surrounding world. The sense-impressions of the surrounding world leave traces in the sentient substance; these traces, which are structures of a certain form corresponding exactly to the various impressions, are preserved and constitute a predisposition to being very easily revived by impressions of the same kind. The revival of feeling in traces left in the sentient structure from former impressions is called memory. If a new impression of the same kind as the traces of the former impressions affects a sentient being, the new impression already finds a convenient path for its reception prepared. Its peculiar vibration fits in the old trace and thus runs along very easily in the memory-grooves of former impressions, reviving at the same time the feelings perceived at their original formation. The feeling thus caused is composed of several elements, which naturally melt into one: first, there is that kind of feeling which is produced by the present impression; secondly, there is the revival of former feelings or memory-sensations; and thirdly, there is a feeling of congruence resulting from the combination of these two. This third element is a new and a very important feature. We suppose that it is extremely insignificant in the beginning, but being a constantly growing factor, it rapidly increases in importance. The stronger and the more independent the memory-structures become, the more

clearly will their congruence with fresh sense-impressions be felt as a congruence.

This feeling of congruence is the simplest form of what psychologists generally call "recognition."

The recognition of a sense-impression, as being the same as some former sense-impression, adds to the feeling a new quality; it imparts meaning to it. This feeling of a special kind will now stand for something. In this way impressions upon sentient substance will, in the course of their natural development, simply by the repetition of similar and same impressions, come to indicate the presence of certain conditions that cause the impression. This act of indicating something, of symbolising the presence of a reality, of possessing meaning, is the birth of soul. Sense-impressions that have acquired meaning are called sensations. A sensation standing for a special object symbolises that object. Abstract ideas are symbols of a higher degree, but they remain symbols just the same. And it is the sentient symbols which constitute the soul.

Those actions which are regulated by the meanings of sentient symbols of which a soul consists should alone, according to a strict terminology, be called "psychical." The falling stone, the chemical elements, when combining or separating, etc., are alive; there is a spontaneously acting power even in unorganised nature; but the actions of unorganised nature are not determined by the meaning of feelings, and, in truth, we have no reason to believe that their feelings—granting that they really do possess feelings of some kind—are freighted with even so much as the slightest inkling of significance. In a word, there is no soul in the stone; there is no mind in the water-fall; and there is nothing psychical in either oxygen or hydrogen. But there is soul wherever meaning can be found as the regulating motive of actions; there is purpose. And wherever purpose is, there is mind.

PLEASURE AND PAIN.

Professor Haeckel goes still farther in the application of his theory of Panpsychism: he speaks of the atoms not only as feeling each other, but also as having pleasure and pain. This indicates

either that he is serious in his belief in the psychical nature of all things, or it proves how dangerous it is to introduce an allegorical expression the allegorical character of which is from the beginning lost sight of.

What are pleasure and pain?

Pleasure and pain are known to us by experience; they are feelings. Pleasure is an agreeable, pain a disagreeable feeling.

Pleasure and pain are different from sensation. Sensations are representative of certain somethings called objects. Pleasures and pains, however, are not representative, they are purely subjective states. There may be pleasurable or painful sensations, and there may be pain indicating the presence of pain-producing objects, but that does not concern us now. When speaking of pleasure and pain we do not refer to the representative value of feelings, but consider a merely subjective aspect, pleasure being the agreeableness, pain the disagreeableness of feeling.

Accordingly pleasure and pain presuppose the existence of an organised system of feelings. An isolated feeling, we have learned, is meaningless; it is still less pleasurable or painful. In order to agree or disagree, there must be something with which to agree or disagree. Therefore, although pleasure and pain are not symbols indicative of some objective presence, they can take place only in sentient organisms, in systems of feelings, in souls. Where these complex conditions, indicative of the presence of a soul, are absent, we have no right to speak of the presence of pleasure and pain.

We cannot interpret the phenomena of unorganised nature as being endowed with feelings of pleasure and pain. Pleasure and pain are psychical phenomena, and psychical phenomena can take place in souls only.

We might as well speak of the presence of positive and negative electricity in the cataract, the water-power of which is employed to produce electricity. Electricity is, in such a case, transformed water-power; but can we, for that reason, say that the motion of water is either positive or negative electricity?

All the motions of the objective world must be supposed to have their subjective correlates; but the simplest forms of objective

phenomena cannot have those subjective correlates which, according to our experience, appear and have their conditions of appearance only in the most complex and highest developed forms of existence—in organised nature.

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The physiological conditions of pleasure and pain are now just beginning to be investigated (see Goldscheider's article in Dubois-Reymond's *Archiv*, 1891), and most philosophical theories concerning the nature of pleasure and pain are mere assumptions. Almost all the views that are now current attempt an explanation by generalising the idea of pleasure and pain so as to regard the feelings of pleasure and pain as a universal feature of nature. This vicious method of generalisation at the cost of discrimination has produced much confusion in the world; and its influence is the more pernicious as average minds are easily satisfied with generalities.

Now, the theory of making pleasure and pain universal features of existence is a palpably erroneous theory; it is a wrong generalisation. It is true that sentient beings naturally seek pleasure and avoid pain. But are we allowed, according to the laws of logic, to transfer the special feature of the case to the whole class of all processes where a seeking and an avoiding can be observed? Certainly not. Because sentient beings are repelled by pain and attracted by pleasure, we cannot say that every repulsion is due to pain and that every attraction is due to pleasure.

The theory according to which pleasure and pain alone are the causes of attraction and repulsion we may fairly consider as a poetical license justifiable within certain narrow limits, and actually justified in so far as there is in every natural process some peculiar feature that is analogous to the feelings of sentient beings. This peculiar feature—viz. its subjectivity—is, as we have seen, not visible, not observable; yet it exists: it is that something which in the course of evolution becomes, in special combinations, first feeling and then consciousness. But for that reason it is not as yet either consciousness or feeling.

While on the one hand the theories of pleasure and pain that regard pleasure and pain as universal features of natural pheno-

mena, are arrived at by a wrong method of generalisation, we find on the other hand they do not agree with facts. They neither explain nor account for the appearance or disappearance of real pleasures and pains such as take place in animal life.

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Starting from merely theoretical considerations, Kant defines pleasure as a feeling of furtherance, pain, as a feeling of hindrance of life; and so prominent a physiologist and psychologist as Alexander Bain says that "States of pleasure are connected with an increase, states of pain, with an abatement of some or of all the vital functions."

A consideration of the actual causes of our pleasures and pains will prove the incorrectness of these views, which are also due to wrong generalisations. An increase of the vital functions and a further growth, either of the organs or of the whole organism, is very often accompanied with pain. A growing tooth causes, as a rule, as much pain as a decaying tooth. And if by some drug the decay is hastened and the nerve is killed, there is, connected with the suppression and sometimes with the mere abatement of the vital function, an abatement of the pain also.

Feelings of pleasure and pain presuppose that habits have been formed in a sentient organism.

Pain is not always a hindrance of life, nor is every hindrance of life painful. Pain is not an abatement of the functions of life, not a decay, nor a destruction. But pain is always a disturbance of life and of the habits that have been formed.

Growth is, under certain circumstances, as much a disturbance as is decay. And decay, if it is simply an abatement or cessation of function, is not accompanied with pain.

While pain is always a disturbance of the functions of an organism, pleasure is simply the gratification of wants; functions and wants being formed by habits, we may briefly say that pleasure is agreement, pain disagreement, with habits.

There are natural wants and unnatural wants. There are habits beneficial to the furtherance of life, and there are habits injurious to the furtherance of life. The pleasure connected with the gratifi-

cation of wants does not depend on its being a furtherance or a hindrance of life, but solely on the intensity of the want. And the intensity of the want, again, depends on the degree to which a habit has become inveterate.*

* * *

The theory of pleasure and pain which regards pleasure as indicative of the growth, and pain, of the decay of life, leads ultimately to the ethics of hedonism, which identifies the good with the pleasurable. However, if our view of pleasure and pain be correct, it is apparent that the pleasure theory in ethics is wrong in its very foundation. The pleasurable would cease to be a criterion of goodness; for many things are pleasurable that are bad, and many things are painful that are good. Growth, development, progress, evolution have often been, nay must mostly be bought with great pain, tribulation, anxiety, and also with the renunciation of pleasures. On the other hand the fulness of pleasure is always a very dangerous symptom for any state of existence.

The seeking of pleasure and the avoiding of pain are certainly very questionable guides in determining what right conduct is. In adopting pleasure and pain as the principles of ethics, we adulterate the nature of morality; for morality exists and has been called into being simply to counteract the dangerous allurances of that which promises to produce pleasure and to avoid pain. Ethics has to teach us how to live, how to develop, how to grow, how to make our lives useful and serviceable. If ethics were simply a method of how to obtain the greatest amount of pleasure, we might better openly confess that there is no moral goodness but only pleasurableness, and consequently that morality is a chimera and ethics a farce.

A defender of the pleasure theory in ethics writes in reply to this criticism of his view: "To seek pleasure and to avoid pain is

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* This theory of pleasure and pain was first set forth in an editorial article of No. 120 of *The Open Court*, which has been republished in the chapter "Pleasure and Pain," pp. 338–345, of *The Soul of Man*. A correct view of the nature of pleasure and pain is of great importance, especially in ethics. Notwithstanding the palpable erroneousness of the old view, several articles written by prominent authors have appeared of late, that continue in the old strain without taking notice of the criticism that overthrows the basis of their theories.

not wrong. Why shall we deprive men of their enjoyments?" Certainly, everyone has a right to enjoy himself; every one has a right to seek pleasure and to avoid pain. But seeking pleasure and avoiding pain is not as yet ethical. Under ordinary circumstances it is right enough to follow the natural impulses of seeking pleasure and avoiding pain. But there are cases where seeking pleasure, be it for ourselves or for others, and avoiding pain, be it for ourselves or for others, become actual wrongs; not because present pleasures will lead to future pains, but because certain pleasures are a hindrance to the higher evolution of the soul.

It is often said that the renunciation of pleasures is richly made up for by the pleasures which are afforded in a more fully developed life. But this, in my opinion, is not true. The adult has rather less pleasures than the child, and the civilised or highly cultured man does not enjoy himself as much, as easily, and as cheaply as does the savage, the uncultured, the fool.

III. MR. THOMAS A. EDISON'S PANPSYCHISM.

Some time ago Mr. Thomas A. Edison was interviewed on the question, "What is life?" Mr. Edison answered the question; and his view is quite in accord with Professor Haeckel's idea of panpsychism. The article appeared first in a daily newspaper. Being remarkable for its coincidence with the views of a great scientist, and coming from the pen of so interesting a man as the famous inventor of the phonograph, we deem it best to republish it in full, with Mr. Edison's permission, who, at the same time, acknowledged the copy we sent him as correct.

This is the article:

INTELLIGENT ATOMS.

BY THOMAS A. EDISON.

My mind is not of a speculative order, it is essentially practical, and when I am making an experiment, I think only of getting something useful, of making electricity perform work.

I don't soar; I keep down pretty close to earth. Of course there are problems in life I can't help thinking about, but I don't try to study them out. It is necessary that they should be studied, and men fitted for that work are doing it. I am not fitted

for it. I leave the theoretical study of electricity to the physicists, confining my work to the practical application of the force. It is my belief, however, that every atom of matter is intelligent, deriving energy from the primordial germ. The intelligence of man is, I take it, the sum of the intelligences of the atoms of which he is composed. Every atom has an intelligent power of selection and is always striving to get into harmonious relation with other atoms. The human body is, I think, maintained in its integrity by the intelligent persistence of its atoms, or rather by an agreement between the atoms so to persist. When the harmonious adjustment is destroyed the man dies, and the atoms seek other relations.

I cannot regard the odor of decay but as the result of the efforts of the atoms to dissociate themselves; they want to get away and make new combinations. Man, therefore, may be regarded in some sort as a microcosm of atoms agreeing to constitute his life as long as order and discipline can be maintained. But, of course, there is dissatisfaction, rebellion and anarchy leading eventually to death, and through death to new forms of life. For life I regard as indestructible.

All matter lives, and everything that lives possesses intelligence. Consider growing corn, for example. An atom of oxygen comes flying along the air. It seeks combination with other atoms and goes to the corn, not by chance, but by intention. It is seized by other atoms that need oxygen, and is packed away in the corn where it can do its work. Now carbon, hydrogen and oxygen enter into the composition of every organic substance in one form of arrangement or another. The formula *CHO*, in fact, is almost universal.

Very well, then, why does a free atom of carbon select any particular one out of 50,000 or more possible positions unless it wants to? I cannot see how we can deny intelligence to this act of volition on the part of the atom. To say that one atom has an affinity for another is simply to use a big word. The atom is conscious if man is conscious, is intelligent if man is intelligent, exercises will-power if man does, is, in its own little way, all that man is. We are told by geologists that in the earliest periods no form of life could exist on the earth.

How do they know that? A crystal is devoid of this vital principle, they say, and yet certain kinds of atoms invariably arrange themselves in a particular way to form a crystal. They did that in geological periods antedating the appearance of any form of life and have been doing it ever since in precisely the same way. Some crystals form in branches like a fern. Why is there not life in the growth of a crystal? Was the vital principle specially created at some particular period of the earth's history, or did it exist and control every atom of matter when the earth was molten? I cannot avoid the conclusion that all matter is composed of intelligent atoms and that life and mind are merely synonyms for the aggregation of atomic intelligence.

Of course there is a source of energy. Nature is a perpetual motion machine, and perpetual motion implies a sustaining and impelling force.

When I was in Berlin I met Du Bois-Reymond, and, wagging the end of my

finger, I said to him, "What is that? What moves that finger?" He said he didn't know; that investigators have for twenty-five years been trying to find out. If anybody could tell him what wagged this finger, the problem of life would be solved.

There are many forms of energy resulting from the combustion of coal under a boiler. Some of these forms we know something about in a practical way, but there may be many others we don't know anything about.

Perhaps electricity will itself be superseded in time, who knows? Now a beefsteak in the human stomach is equivalent to coal under a boiler. By oxidisation it excites energy that does work, but what form of energy is it? It is not steam pressure. It acts through the nerve-cells, performs work that can be measured in foot pounds, and can be transformed into electricity, but the actual nature of this force which produces this work—which makes effectual the mandate of the will—is unknown.

It is not magnetism, it doesn't attract iron. It is not electricity—at least such a form of electricity as we are familiar with. Still, here it is necessary to be guarded, because so many different forms of electricity are known to science that it would be rash to say positively that we shall not class vital energy as a form of electrical energy. We cannot argue anything from difference in speed. Nerve-force may travel as fast as electricity, once it gets started. The apparent slowness may be in the brain. It may take an appreciable time for the brain to set the force going.

I made an experiment with a frog's leg that indicates something of the kind. I took a leg that was susceptible to galvanic current. The vibration produced a note that was as high as a piccoto. While the leg was alive it responded to the electrical current; when it was dead it would not respond. After the frog's leg had been lying in the laboratory three days I couldn't make it squeal. The experiment was conclusive as to this point: The vital force in the nerves of the leg was capable of acting with speed enough to induce the vibration of the diaphragm necessary to produce sound.

Certainly this rate of speed is greater than physiologists appear to allow, and it seems reasonable that there is a close affinity between vital energy and electricity. I do not say they are identical; on the contrary I say they are very like. If one could learn to make vital energy directly without fuel, that is without beefsteak in the stomach, and in such manner that the human system could appropriate it, the elixir of life would no longer be a dream of alchemy. But we have not yet learned to make electricity directly, without the aid of fuel and steam.

I believe this is possible; indeed, I have been experimenting in this direction for some time past. But until we can learn to make electricity, like nature, out of disturbed air, I am afraid the more delicate task of manufacturing vital energy so that it can be bottled and sold at the family grocery store will have to be deferred.

Electricity, by the way, is properly merely a form of energy, and not a fluid. As for the ether which speculative science supposes to exist, I don't know anything about it. Nobody has discovered anything of the kind. In order to make their

theories hold together they have, it seems to me, created the ether But the ether imagined by them is unthinkable to me. I don't say I disagree with them, because I don't pretend to have any theories of that kind, and am not competent to dispute with speculative scientists. All I can say is, my mind is unable to accept the theory. The ether, they say, is as rigid as steel and as soft as butter. I can't catch on to that idea.

I believe that there are only two things in the universe—matter and energy. Matter I can understand to be intelligent, for man himself I regard as so much matter. Energy I know can take various forms, and manifest itself in various ways. I can understand also that it works not only upon, but through, matter. What this matter is, what this energy is, I do not know.

However, it is possible that it is simply matter and energy, and that any desire to know too much about the whole question should be diagnosed as a disease; such a disease as German doctors are said to have discovered among the students of their universities—the disease of asking questions.

THE NATURE OF INTELLIGENCE.

Mr. Thomas A. Edison's article is full of suggestions which invite further discussion. We must here limit ourselves solely to those which touch the problem of Panpsychism and Panbiotism.

Any one who has read Mr. Edison's article will be struck with the strange coincidence that obtains between his and Professor Haeckel's views. The famous naturalist considers what he calls panpsychism as the corner-stone of his monism: he says that atoms possess souls; and in a similar way the famous inventor believes in the intelligence of atoms, he declares that atoms are endowed with minds. There is certainly a deep truth in this conception of nature; and yet we cannot accept it in the way it is presented by either Professor Haeckel or Mr. Edison.

With reference to Professor Haeckel's views we have explained why atoms, the actions of which are not endowed with meaning, have no soul, and also why they cannot feel pleasure and pain. It remains for us to explain why atoms are not in possession of intelligence.

What is intelligence?

That reaction upon a stimulus which takes place in the way it does because of the presence of meaning, is called mental, or in-

telligent action; and the ability to adjust action to mental representations is intelligence.

Intelligence is a psychical quality, and the psychical process which is preparing to act with intelligence is called deliberation. Deliberation is the successive revival of several soul-structures, either of memories of former experiences, or of rules derived therefrom, or of advice formerly received, including also new combinations of these mental structures, and keeping in view the probable results of the intended action. In a word, deliberation is thought, and thought is an interaction among meaning-freighted feelings.

Among these ideas, which in so far as they can influence action (i. e. purposive motions) are called "motives," the strongest one will determine the result. Now, any atom of non-organised matter, say an atom of hydrogen, acts (as we said above) with spontaneity. It is in this sense as much alive as is any ever so complex vegetable or animal substance. It is self-acting, and its action reveals the innermost nature of its being just as much as the action of the man shows the character of the man.

There is, however, a great difference between the action of animal beings whose action is regulated by the meanings of their feelings, which in their totality we call the soul, and the actions of inorganic matter, of crystals, minerals, gases, chemical elements, and gravitating masses, all of which we comprise under the name "inanimate nature." The stone's fall does not depend upon any representative feeling; it depends solely upon that quality of the stone which we popularly call its weight. Nor has the falling stone any choice whether to fall or not to fall. Under certain circumstances it falls. There is no act of deliberation preceding the fall. Nor has it any choice concerning the direction of its fall. The surrounding conditions, viz., its position with regard to the centre of the earth together with its mass, determine the process. The stone's action can satisfactorily be explained without attributing to it psychical qualities. The stone possesses no soul; it is void of mentality; and although we believe that everything, organised or unorganised, is endowed with subjectivity (by which we understand the conditions of psychical life, or the potentiality of feeling and consciousness), this

subjectivity can only be analogous to the blind impulse of the stone's mass. If some other, psychical or mental, subjectivity were present, we should say that it apparently does not enter as a factor in the determination of the event. Accordingly such an assumption is gratuitous. There is subjectivity, but there is no intelligence. There is potentiality of feeling, but there is no consciousness. There is present the elementary condition of that something which is going to develop into mind, but there is no mind; there is no meaning-freighted awareness of the surrounding conditions.

Says Mr. Edison:

"The intelligence of man is, I take it, the sum of the intelligences of the atoms of which he is composed."

The sum total of the intelligences of the atoms in a human body (if, in this connection, for the sake of argument, we grant that atoms are intelligent) would not as yet make up the intelligence of man. Suppose we are contemplating a mosaic picture or inscription. Are such compositions really only the sum of the little stones? Are they not rather a certain peculiar form in which these colored stones are arranged? It is not the sum of the stones that makes the picture, but the form of their composition. The picture is not contained in any single one of them, nor is it the whole number of all the single stones: it originates through their peculiar combination and consists of the form in which they are combined.

Mr. Edison's explanation of the soul, applied to this example of a mosaic picture, would be as follows: Every little stone is in itself a little mosaic picture. The whole picture of the mosaic is the sum of the little pictures of the stones of which it is composed.

The intelligence of the soul, however, is not even as yet the form in which feeling structures combine; it originates with the representative faculty of the feeling structures. The soul is the organised totality of a set of images and abstract mental symbols representing the qualities, the influences, and the interactions of the different objects of the surrounding world, the thinking subject included.

Says Mr. Edison:

"Every atom has an intelligent power of selection, and is always striving to get nto harmonious relation with other atoms."

The latter is true; the former is an error. Every atom "is always striving to get into harmonious relation with other atoms"; this is its nature; and its nature being stable, consisting of certain inalienable and intrinsic qualities, the atom acts with consistency. Certain atoms, say atoms of hydrogen, are of such a nature as to combine with certain other atoms, say atoms of oxygen, into molecules that form a certain substance of peculiar properties, which, if each atom of oxygen combines with two atoms of hydrogen, would be H_2O, or water. This substance again, having certain definite qualities, will in a temperature below freezing point crystallise at a definite angle. The angle of crystallisation being the same for all molecules H_2O, the result will necessarily be one of most marvellous regularity. And not being able to observe the atoms in their secret activity, not knowing all the details of nature's marvellous laboratory, we are astonished to find such a wonderfully harmonious relation. And yet, considering the nature of things, we are urged to confess that it is the result of an inevitable necessity, which takes place according to strict mathematical laws.

Although every atom strives, according to its nature, to get into harmonious relation with other atoms, we do not see any "intelligent power of selection" in the province of inorganic nature. Every atom of inorganic substances acts according to its nature in one and the same way throughout. There is no choice, no selection, allowed. Choice and selection are faculties that are reserved for the higher domains of psychical life, which originates in the domain of animal existence when meaning, conditioned by the presence of sentiency, rises into being and creates the soul.

Supposing that through some combination of atoms their subjectivity be combined in such a form as to produce sentiency or feeling, we can very easily understand how this feeling will in time become representative of the conditions by which it is affected. The soul does not consist of the atoms of its organism, nor of the sum of the qualities of the atoms. The soul consists of something more subtle than matter: the soul consists of the meaning that is attached to the different forms of the feelings which obtain in living organisms.

THE PROBLEM OF THEISM.

The problem as to whether or not there is an element of feeling present in the unorganised realm of nature, is connected also with the problem of theism. The monistic view of the world, which considers nature as alive throughout, can neither accept the old supernaturalism, nor the materialistic theory of atheism. Theism, as it is usually conceived, believes in a personal creator and ruler of the world. Materialism denies the existence of any God; it regards matter and its actions as the only reality.

Monism does not regard mental phenomena as an incidental by-play of blindly operating forces. It regards mind as a necessary product of reality. Mind and the peculiar qualities of mind are characteristic of the world-tree, of which it is the highest efflorescence we know. From the fruit we can know the root, from the product we can judge of the factors, in the creature we see the creator.

That great something which has produced us, the All-power in which we live and move and have our being, and obedience to the laws of which are the conditions of life, of welfare, and of an advance to higher life, is called with a popular religious name "God."

Let us comprise under the name "theism" all those views which recognise *any* conception of God, and reserve the term anthropotheism for that view which regards God as a person, a mind, a conscious being, or a world-ego. Atheism in that case will be a negation of the existence of God in any form, a negation of the All-power of which we are parts and to which we have to conform; and accordingly atheism will be also a negation of any authority of moral conduct.

We call attention to the fact that many who call themselves atheists, simply because they do not believe in anthropotheism, are according to this definition not to be classed among the atheists.

What has monism to say on the problem of the existence of God?

Prof. George J. Romanes, in an article which appeared some time ago in the *Contemporary Review* under the title "The World as

an Eject," declares that monism has left the problem of theism in the same state it was in before. He says:

"The views of the late Professor Clifford concerning the influence of monism on theism, are unsound. I am in full agreement with him in believing that monism is destined to become the generally accepted theory of things, seeing that it is the only theory of things which can receive the sanction of science on the one hand, and of feeling on the other. But I disagree with him in holding that this theory is fraught with implications of an anti-theistic kind. In my opinion, *this theory leaves the question of theism very much where it was before.** That is to say, while not furnishing any independent proof of theism, it likewise fails to furnish any independent disproof.

"As a matter of methodical reasoning it appears to me that monism alone can only lead to agnosticism. That is to say, it leaves a clear field of choice as between theism and atheism."†

Clifford says in the passage referred to by Professor Romanes:

"Reason, intelligence, and volition are properties of a complex which is made up of elements themselves not rational, not intelligent, not conscious."

Rational, intelligent, conscious beings, so far as their material existence is concerned, are made up of elements not rational, not intelligent, not conscious. But mind, reason, intelligence are not at all made up of material elements; they are neither latent nor germinal and least of all fully developed properties of the single atoms. Reason can in our conception never be explained as a complex result of the interaction of absolutely irrational elements. The material elements of the world, it is true, are not intelligent, not conscious; but the world as a whole (although *not* conscious and *not* endowed with purposive volition) is at least *not ir*rational and not void of determination. On the contrary the world as a whole is the prototype of all rationality, and human reason is a mere image of the world-order. What is the reason of a rational being but an incarnation of this world-order?

Reason is not a thing of matter; exactly so the world-order is not a thing of matter. But it exists none the less; it is a reality.

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* *Italics are ours.*

† This same position is maintained with equal vigor in Professor Romanes's latest work *Darwin and After Darwin*, pp. 412–442. The Open Court Publishing Co., 1892.

On the other hand, the world-order need neither be a personal being nor the work of a personal being. The order that prevails in the real world and in the laws of nature appears also in the ideal world, in the laws of formal thought, in mathematics, and its kindred sciences; and the same rationality that obtains in the ideal domain permeates the realms of reality, the universe of objective existence.

The idea that God created the world-order and dictated its laws is a fanciful and poetical allegory; it is as such a pagan notion which belongs in the same category with Hesiod's Cosmology, but it is scientifically and philosophically unthinkable. For God is eternal and God's being is eternal. God has not created his own attributes and the world-order is simply an attribute of God; it is part and parcel of his nature. Or can you think of God without that attribute of irrefragable order that appears to science as necessity, to religion as holiness, to ethics as justice, to art as the law of beauty, to the mystic as the key to all the wonders of existence which though solving all the problems remains most wonderful itself?

The world as a whole, the cosmos, God, or whatever we call the One and All, is the prototype of all reason, but he is not a mind; he is not a system of sentient symbols; he is not a soul. Minds are a special kind of God's creatures; but God is not a creature: he is the condition of the existence of creatures, he is the creator.

The objection is made from materialistic quarters: "What is the world as a whole but the sum of all atoms!" This is an error. The world is not merely the sum of all its atoms; the universe does not consist of innumerable little particles which in their combination form the All. On the contrary: the world as a whole, existence in its oneness, or speaking religiously God, is alone the only true reality; all other things and beings are parts of him. Atoms are abstract concepts; the existence of an atom and of its actions presupposes the existence of the great whole of which it is a part, and without which it would have no reality. There are no atoms in themselves. Atoms regarded as things in themselves are a scientific superstition.

Professor Romanes advances the proposition, that cosmical events, being as highly complex as nervous phenomena, might be possessed of a similar subjectivity. The nervous phenomena which

constitute the physiological action of mind in the province of objectivity are, it is true, very complex, but complexity does not constitute that characteristic feature on the presence of which depends the origin of mind.

Professor Romanes says:

"Both mind and matter in motion admit of degrees: first as to quantity, next as to velocity, and lastly as to *complexity*. But the degrees of matter in motion are found, in point of observable fact, not to correspond with those of mind, save in the last particular of complexity, where there is unquestionably an evident correspondence.

"Now, if we fix our attention merely on this subject-matter of complexity, and refuse to be led astray by obviously false analogies of a more special kind, I think that there can be no question that the macrocosm does furnish amply sufficient opportunity, as it were, for the presence of subjectivity, even if it be assumed that subjectivity can only be yielded by an order of complexity analogous to that of a nervous system. For, considering the natural and dynamical system of the universe as a whole, it is obvious that the complexity presented is greater than any of its parts. Not only is it true that all these parts are included in the whole, and that even the visible sidereal system alone presents movements of enormous intricacy, but we find, for instance, that even within the limits of this small planet there is presented to actual observation a peculiar form of circumscribed complex, fully comparable to that of the individual brain, and yet external to each individual brain. For the so-called 'social organism,' although composed of innumerable individual personalities, is, with regard to each of its constituent units, a part of the objective world—just as the human brain would be, were each of its constituent cells of a construction sufficiently complex to yield a separate personality."

The so-called social organism which is composed of innumerable personalities undoubtedly yields a peculiar spiritual existence, which cannot be explained solely as the sum of the parts and actions of its constituent individuals. The relations in which the members of society stand to each other are of an analogous importance to the relations of the cells and organs in an organism. It is the form that constitutes this or that kind of an organism, not the sum of atoms, nor the intricacy or complexity of their combinations. Different forms of perhaps the same material amount, and of the same intricacy of combination, yield quite distinct types of individuality, and every state, every nation, every society possesses, as it were a personality of its own.

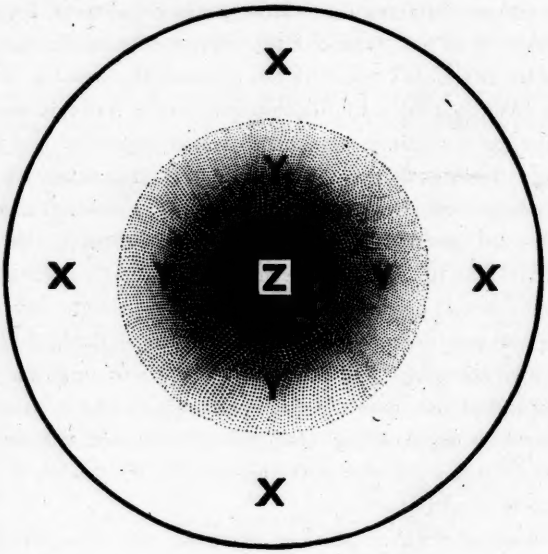
Mind is not constituted by complexity. Mind is a system of sentient symbols. Wherever we find organisms acting in such a way that their actions depend upon the *meanings* of certain stimuli, we have to attribute to them that characteristic feature which we call mind, or soul. The action of a falling stone is explainable without attributing to it any mentality. There is no representative value, no meaning in that quality of the stone which, under certain conditions, makes the stone fall. However, if a man acts, the motive of his action does not consist in the gravity of certain material particles of his brain. It consists in the meaning that resides in certain feelings. Without taking into consideration the meaning that dominates the man's motives, we cannot explain his action, and it is the meaning of feelings that the soul consists of. Only where and when we can discern the presence of meaning as the raison d' être of actions, are we justified in calling phenomena mental. When the action that takes place in response to a stimulus depends solely upon the significance of a symbol, the inference is legitimate, nay, it is inevitable and conclusive, that we have to deal with a mind. The motion of a comet, which depends perhaps not only upon the gravity of its mass, but also upon the chemical actions and explosions of its constituent elements during its approach to the sun, may be ever so intricate; but this does not in the least justify the assumption of the presence of mind in the comet.

The assumption of mind in inorganic nature is not only fantastical, it is also needless. Facts are better explained without this speculation.

The world as a whole is not bare of subjectivity. In this we agree with both Clifford and Romanes. But we do not identify subjectivity and mind, the latter being a special and indeed a very complex form of subjectivity. We suppose that subjectivity pervades also all the processes of unorganised nature, and no less the cosmic events; but be they ever so much more complex than nervous phenomena, there is present only a non-mental subjectivity.

Yet although the phenomena of so-called inanimate nature, be they motions of celestial bodies or physical and chemical processes, are non-mental, there is in every one of them present that grand

feature which is as it were the breath of God. This feature appears in all the phenomena of nature, but in none of them more gloriously than in the soul of man. Even the cosmical events of marvellous sublimity appear as a mere prelude to the appearance of soul-life, for in soul-life is focused all the divinity of nature. Reason is the reflex of the world-order and thus a rational being is made in the likeness of God.



Professor Romanes presents the problem of the subjectivity of existence by the adjoined diagram, which he explains as follows:

"Following Clifford, I will call these inferred subjectivities by the name of 'ejects,' and assign to them the symbol *Y*. Thus in the following discussion *X* = the objective world, *Y*, the ejective world, and *Z*, the subjective world. Now, the theory of monism supposes that *X*, *Y* and *Z* are all alike in kind, but presents no definite teaching as to how far they may differ in degree. We may, however, at once allow that between the psychological value of *Z* and that of *X*, there is a wide difference of degree, and also that while the value of *Z* is a fixed quantity, that of *Y* varies greatly in the different parts of the area *Y*."

The deep shading of *Z* indicates consciousness, and consciousness is that form of subjectivity which constitutes our mind. *Z* is

not, as Professor Romanes asserts that it is, a fixed quantity; it varies greatly, as every one knows from his own experience. It is lowest in trance or swoon or profound sleep. It is highest in the state of concentrated attention. The ejective element, which we assume to be present as a correlative concomitant in the objective world, we assume, with Professor Romanes, varies greatly in the different parts of the area *Y*. Like Professor Romanes, we also do *not* assume the existence of any unshaded *X*. There is no objectivity without its subjective correlate. But, according to the theory of monism, the nature of the concomitant subjectivity is not unknowable: it can be inferred from the nature of objective existence. The subjectivity of the falling stone is most elementary, and *not mental*; its action is not prompted by meaning. That something which impels the stone to fall, and which science calls gravity, does not possess any representative element. There is no symbolism involved in gravity. There is no soul in the stone. The stone is not incited to falling by any purpose; it has no end in view. Purpose originates with and through the presence of representative symbols. According to the theory of monism the shading of the surrounding zones is not a matter concerning which we have to suspend our judgment. If monism is true, we know very well how deeply we have to shade the different phenomena of objective nature.

Taking this view, we object to Professor Romanes's conclusion when he says:

"Without in any way straining the theory of monism, we may provisionally shade *X* more deeply than *Z*, and this in some immeasurable degree.

"Monism sanctions the shading of *X* as deeply as we choose; but the shading which it sanctions is only provisional."

While the presence of mind in the phenomena of the stellar universe and of inorganic nature must decidedly be denied, I would not, for that reason, declare that monism is atheistic.

Monism is decidedly theistic although not anthropotheistic. It is monotheistic in so far as it recognises that the all-existence in which we live and move and have our being is the *'EN KAI ΠAN*, the One and All. But there is not the slightest reason for the theory,

and there are sufficient reasons against it, that the universe is possessed of a huge world-ego, that it is a person or a mind.

We maintain on the one hand that the laws of nature are not designs arranged with consciously preconceived purposes. Yet on the other hand, we do not forget, that the world-order possesses quite definite features and that the course of evolution runs in a very unmistakable direction. We can plainly decipher its character, and the great religious teachers of mankind have with a truly prophetic instinct proclaimed the ethical injunctions to be derived therefrom—injunctions which, millenniums after them, science has discovered to be founded in the nature of things.

God is no mind, yet God is mentality, the source of all mind: God is not a spirit, but he is spirituality. The subjectivity of the universe from which all consciousness rises is part of his being, and whatever that subjectivity, considered as a whole, be or be not, that much is certain, that in grandeur it corresponds to the objectivity of the world. It does not think in symbols as a man does; it is not a mind: but it exists nevertheless. Whatever it is like we learn from the revelation of its appearance in objective existence, from the cosmic order, the laws of nature, and the moral ideas of mankind.

Knowledge of nature means knowledge of God, for nature is God as he appears and the objectivity of being is the revelation of God.

We would not limit God to the subjectivity of nature: God is both subjectivity and objectivity combined. He is that All-power that is, was, and will be, thus being the ultimate authority of conduct.

God is not a mind, he is more than a mind; God is not a system of symbols, he is the reality symbolised in mind. He is not a person, he is super-personal.

He who does not see that the God of monism is greater than the God of anthropotheism, had better believe in a personal God, until he appreciates the truth that God is not personal but super-personal. For after all anthropotheism is nearer the truth than atheism, for atheism (well understood, the atheism of our definition above) is a moral nihilism devised to shake off all ethical obligation

so as to make the lust of the moment and the pleasure of the individual the supreme rule of action.

Monism, accordingly, does not leave the problem of theism where it was before. Monism proves that God is not to be conceived in the likeness of man, but the reverse: man, being a system of symbols representing the world, is to be conceived as having been made or rather as having originated in the likeness of God. God is the original, man is the copy. God is the whole, man is the part, in which the whole finds a more or less correct representation. The picture is not perfect, but the grandest duty a man has is the constant approach to a greater perfection. Man is the temporal, God is the eternal. Man is limited, God is the infinite.

EDITOR.

LITERARY CORRESPONDENCE.

I.

FRANCE.

DR. PAUL SOLLIER has just published, in the Bibliothéque Charcot-Debove,* a new and excellent work, *Les troubles de la memoire.* This work is not identical in its purpose with that of M. Ribot; it corrects the latter in certain points, completes and corroborates it in others. M. Sollier set out to discuss this question solely from a medical standpoint, which was intentionally passed over by M. Ribot, but he has also necessarily touched upon its psychological aspects, and, as he informs us himself, he was obliged on the whole to make a medico-psychological study of the question.

The subject is a vast one; one could include in it aphasia and all the weaknesses resulting from the destruction of the brain-centres, whether those of motion or of sensation. M. Sollier has taken the pains to reduce it, however, to definite limits. He studies especially the subject of acquired amnesia (diminutive changes and disaggregations of the memory). He does not consider the subject of congenital amnesia, which is an absence and not a loss of memory. Strictly considered, the only cases of true amnesia, or *organic* amnesia, are those which result from the destruction of the nerve-centres, since in this case there is an absolute loss of the power of forming mental images, and not simply an enfeebling or forgetting of them, which is characteristic of *functional* amnesia. From a clinical standpoint amnesia exists only in the last case. Though the effect may be the same in both cases, the causes are not identical.

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* Rueff, publisher.

Clinical investigation cannot, however, overlook the diminutive changes which take place in the memory and which, as early as 1817, were called by Louyer-Villermay dysmnesia, and which are always closely allied to organic modifications of the brain. As regards amnesia itself, it is important to distinguish simple amnesia from retrogressive and progressive amnesia. M. Sollier explains the motive causes of these different conditions with great lucidity, and renders them easy of comprehension by means of ingenious illustrations.

I call attention to the information he gives us as to the conditions under which a revival of mental images takes place, p. 30; to his criticism of Ribot's opinion, according to which the power of correctly locating events in the scale of time is the true characteristic of psychical memory: it is quite enough if it reproduces events as in the past, that is to say if there exists a conscious knowledge which shows that the mental conception belongs to the past, or is, simply, a remembrance, p. 35 and 40; to his remarks on the strengthening of mental images due to the repetition of remembrances, the necessary sequence of which is that a weakening of old memories follows the destruction of accumulated mental images, p. 48; to his explanation of the processes of retrogressive amnesia (coming suddenly after an attack of vertigo, a blow, etc.) which he bases upon a supposition of a group of mental conceptions in touch with one another, in such a way that the loss of one leading conception in a group deprives this group of sufficient consistency to form a conscious synthesis, p. 70.

As regards the classifications of amnesia M. Sollier censures that of M. Ribot as being neither openly psychological nor openly clinical, and of taking successively as bases the extent of an observed phenomenon, its evolution, its location in time. Moreover, from a clinical standpoint it has led to a joining together of totally incongruous disorders. M. Sollier therefore rejects it, and contents himself with adopting first of all, with M. Falret, the natural classification of general amnesia and of partial amnesia. Moreover, in taking account of the systematising of lost remembrances, he proposes to make a distinction as to the two varieties of systematised (functional) and of non-systematised (organic) amnesia, considered from the

purely psychological standpoint, p. 59. We should thus have, firstly, the classification of general amnesia, including (A) true organic amnesia (destruction of the centre of mental images), and, under the classification of the systematised, (B) functional, or apparent, amnesia (imperfect performance of the functions of the centres): this latter subdividing into two groups, (*a*) amnesia with its varieties (*a'*) simple, (*b'*) retrogressive, (*c'*) progressive, and (*b*) paramnesia: (*a'*) that of locality, (*b'*) that of exactness; to which it is proper to add (*c*) dysmnesia, which is organic-functional. Secondly, the classification of partial amnesia whether systematised or not, which may be either organic or functional. M. Sollier abandons, moreover, every pathological or etiological classification as being exceedingly unsatisfactory. In the presence of a patient, he justly remarks, the physician can only employ semiology.—I will not enter here into the details of the inquisitor-like investigation entered upon by the author. I must even proceed without stopping through the observations intended for medical men, which form the second part of the work, but I judge that every reader will also find therein many facts which may prove of interest. After having read it, one is more impressed than ever with the importance and delicacy of the motive forces of the memory, in noting the frequency and the varieties even of its sources of weakness. M. Sollier has the credit of pointing them out—in the shape of "defects in synthetical power" and in "will power"—in the sources of weakness where one had not been accustomed to look for them. It would be interesting, he thinks, to find out what part amnesia may perhaps take in the pathogeny of certain nervous disorders, and the influence which it has on their evolution. Specialists for the insane might find therein a new subject of study, and psychology will profit, on the other hand, by that which clinical experience offers it. Is not its main object to learn to understand life as a unit at the same time that it analyses it as a diversity?

* * *

When one passes from a book like that of M. Sollier to the work of M. l'Abbé MAURICE DE BAETS, *Les bases de la morale et du droit*,*

* This book and the following ones are published by F. Alcan.

one is impressed by the change of method. It has become impossible for us to consider pathology as unallied to questions of morality; and we have accomplished this great object of studying matters pertaining to the moral world, the evolution of law, without seeking our base of support in a religious faith or in a metaphysical affirmation. Even M. l'Abbé de Baets himself declares emphatically that he desires to adopt only one starting point from among those we are acquainted with,—the verification of facts,—and truly he shows a good will and knowledge; nevertheless the ground which he considers so firm has, as we believe, no stability. All seems strange to us, if I may so speak, in books of this description. The tone which is peculiar to them, the nature of the facts cited, the progress of the reasoning, impeach them just as surely as the blue color of his costume reveals afar off an inhabitant of the Celestial Empire. I am not an impassioned adversary of the clergy; far from it. I appreciate their intentions and esteem their persons as one should, but I am unable to share their opinions, and I consider indeed that they deceive themselves when they think that faith has ever given to the world an absolute assurance. It has not given it because it has not proved sufficient. Mankind, variable and vacillating though it may be, does not change its beliefs because of fickleness of heart: its mental evolution takes place too slowly for that, and is also too painful. The Catholic church of to-day has adopted as its watchword the return to St. Thomas of Aquinas; it will gain by this unity of effort, without succeeding however in leading back the minds of men to its point of view. The diverse ways we follow tend doubtless as a matter of fact toward the same objective point, and run more or less in the same direction; but humanity scarcely ever passes back again over the paths which it has once traversed.

* * *

We have another little volume by M. Lombroso, *Les applications de l'anthropologie criminelle;* a sequel to *Nouvelles recherches*, which I have mentioned before. We find here interesting pages in regard to transportation and reform schools, and a criticism of the new theories of the penal code (Garofalo, Tarde, Sighele, Onanoff and Blorg, Ferri)—a part of the question considered in the Congress.

A chapter indeed is devoted to the subject of criminal anthropology in modern literature, in regard to which it seems to me M. Lombroso always makes more of a question than is desirable, but which he well understands how to criticise. Then follow several pages on the criminal type in art, after a work of Dr. Edward Lefort; then comes a description of anthropological instruments and methods. I will not affirm that this last work brings us much of novelty; it is chiefly a new and energetic presentation of his views, and M. Lombroso has no doubt whatever that by dint of striking the nail upon the head he will succeed in driving it into the wall of his adversaries.

* * *

The work of M. B. BOURDON, *L'expression des emotions et des tendances dans le langage*, is certainly one of the most curious books one can read. He treats in an original manner of phonetical questions, which are less rife in France than in England and Germany, as to what sounds signify, or speech; what is their worth in intensity, elevation, form or quality, duration; what phenomena are shown by successions of intensity, of elevation, of elementary articulation, of syllables, of words, etc., of duration; what are the relations of these phenomena to versification and what comparison one can make between writing and speech: such are the problems particularly studied, at times with the aid of very simple but instructive facts culled from experience.

These studies—I need scarcely add that they are comparative ones—are of interest for various reasons. They lead up to new ideas of grammar and of language, and furnish arguments for a reform in orthography of which M. Bourdon is a very warm partisan. His readers will not be slow to notice for the matter of that, that he is in regard to this frankly revolutionary; and it may seem paradoxical to say to them, for example, that "the distinction between analytical and synthetical languages is absolutely artificial, and could only be produced through our bad systems of writing." Writing, M. Bourdon indeed remarks, introduces separations in places where spoken language makes no pause. The English write *I will go*, they pronounce it *Iwillgo*. The analysis which pertains to writing masks the true cohesion of the spoken language, and "if in the past all

series of articulations had been written as a single word which were in fact pronounced as a single word, we should not have known the error which consists in opposing certain languages classed as synthetical to others which we class as analytical." The argument is perhaps not a decisive one, and in the neo-Latin languages, for example, one can scarcely deny that the analysis of the written language has conformed to the work of decomposition of the antique forms, so as to adapt itself to the new groupings of their essential elements, groupings wherein these elements remain variable because speech separates them effectively, in many cases by interpolating governing words or others.

But it is not my intention to enter into these detailed discussions. I leave M. Bourdon in further calling attention to his last chapter, *Ecriture.* Persons curious as to graphology will find in it some good ideas concerning this method of "character reading." The author does not tell everything, and I have a suspicion that he greatly despises certain signs valued by the graphologists, and arrived at empirically, but we should note what he has actually said.

* * *

Under the title, *Le monde physique, Essai de conception expérimentale,* M. Dr. JULIEN PIOGER offers to the public a sketch of a world-system. This system is summed up in the expression of "Universal Solidarity," and is based on the idea of infinitely minute matter-particles, or "infinitesimals," the mutual relations of which, and their equilibrium, constitute the machinery of the universe. The atomic-mechanical hypothesis, says M. Pioger, is wrong in resolving matter into perfected differential particles and in assigning to its atoms qualities which make of them either true material corpuscules or a real entity, "a thing in itself." On the contrary, far from intending to assign a limit to materiality, the hypothesis of infinitesimals confines itself to limiting the conception which we may have of it. The infinitesimal corresponds to the infinitely small, that is to say to the non-perfected, to the non-differentiable, beyond our cognisance and our perceptivity; it expresses the most reduced condition of the affinities which constitute matter; it is the expression of the infinitesimal existence of that which we call motion, ex-

tension, ponderability, under the general name of matter. Now the most simple thing which can be conceived of in the physical world, is the *couple* formed by the essential equipoise of two infinitesimals. In developing the couple it becomes possible to form the universe in all its great variety. The solidarity of the parts in the whole appears as the essential condition of existence of all that which Is—the necessary condition of all individuality.

In conclusion I call attention to two new editions, one the well-known work of M. BERNARD PÉREZ, *Les trois premières années de l'enfant*, fifth edition, revised and supplied with an introduction by Mr. James Sully; the other *Les functions du cerveau*, by M. JULES SOURY, a work highly esteemed, embodying the most recent researches.

LUCIEN ARRÉAT.

II.

GERMANY.

One of our foremost psychiatrists, Professor v. Krafft-Ebing of Vienna, says in his celebrated text-book on psychiatry: "If Pedagogy made a more serious study of the character of man in his psychopathological relations, many of the mistakes and severities of our system of education would be removed, many an unsuitable choice of vocation would be left unmade, and thus many a psychical existence rescued."

Any one who is at all familiar with the most important doctrines of the diseased phenomena of mental life, and who knows how frequently psychical disturbances of a more or less serious nature occur during childhood, will fully agree with Krafft-Ebing, and will only regret that pedagogy, in this important direction, has completely neglected its task.

Although lately the necessity of psychiatric knowledge for the pedagogue has been insisted upon in professional circles, for instance, by Professor STRUEMPELL in his *Pedagogic Pathology* (comp. *The Monist* II, 106), yet instruction in this department occupies a wholly subsidiary place in pedagogic education, and has not been made as it should have been, an organic part of the same. The writer of

these lines has accordingly discussed this subject in a special treatise, maintaining that the most important diseased phenomena of mental life might be treated as a part of pedagogic psychology (comp. *The Monist* I, 619).

The demands made were met in different ways. While the English and American press accepted these demands without reserve (for instance, in HALL'S *Pedagogical Seminary*, I, 297), in Germany there has been more caution displayed, inasmuch as the opposing difficulties were regarded as greater than they probably were (Professor REIN'S *Pädagogische Studien*, 1892, Heft I).

We have, however, simply to call to mind the doctrine which more than twenty years ago Maudsley in his "Physiology and Pathology of the Mind" laid such special emphasis upon, that psychic laws are the same in healthy and diseased phenomena, only that they do not operate under the same conditions and therefore produce different symptoms. Far from its being true, therefore, that the introduction of psychopathology into psychology can be opposed by any especially well-founded objections, such a procedure will, on the contrary, be found to be, just as Maudsley said, an appropriate and absolutely indispensable auxiliary of the study of this science. And that which was emphasised by Maudsley, and lately also by MUENSTERBERG in the treatise already discussed in *The Monist* (II, 289), *On the Problems and Methods of Psychology* (Leipsic, 1891, Abel), Ziehen has done in his "Outlines of Physiological Psychology" in a manner which will be full of suggestions for the pedagogue (comp. *The Monist* I, 598).

To be sure, the work of Ziehen is very far from supplying all that the pedagogue needs. We have in this work a vast mass of valuable observations, which will have to be elaborated in a manner that accords with the needs of pedagogy, if this science is to derive any material profit from psychiatry. For the bibliography of this subject we shall refer the reader to a former correspondence of ours (*The Monist* II, 103), and select at present for examination one province only,—a province which is deserving of especial consideration, inasmuch as the phenomena which occur in it are phenomena which most frequently confront the pedagogist, and are most likely to be

overlooked by the untrained eye. We refer to the *psychopathic subsidiary phenomena* of Dr. Koch, by which expression this author comprises all the psychical irregularities, be they natural or acquired, affecting the life of the human personality, which, though not even in the severest cases amounting to actual mental disorders, yet in the most favorable instances so affect the persons afflicted that they appear as lacking the full possession of mental normality and capacity. The second part of Koch's work, mentioned in *The Monist* in the place above cited, has just now appeared. (Ratisbon, 1892, Otto Maier). Having discussed in the first part of his work inherited and chronic psychopathic subsidiary phenomena, the author now proceeds to discuss acquired subsidiary factors, and holds out the prospect of a third part, on the appearance of which we shall have occasion again to discuss the entire work from a different point of view. For the present, only the pedagogic aspect of the question interests us. On many readers, Koch's book must have made the impression,—to judge from his concluding remarks,—that the author shares Lombroso's point of view, and to very many pedagogues such a position would be, from the very outset, a bad recommendation, for it would necessarily, in the very nature of the case, involve the pedagogue in great embarrassment, in the same way as it has involved the philosophical jurist. But embarrassment is no reason why we should close our ears to the truth, and if Lombroso should be right in all his teachings, pedagogy would also be obliged to accommodate its doctrines to his. Upon the whole, however, Koch is opposed to him. Thus when he says: "What I commend Lombroso for is that he has observed much, has collected rich materials, and has been the source of great incentives in many directions, and has worked suggestively in many ways; what I reproach him with is that he has confounded the healthy with the diseased, and has brought under one and the same category without sufficient and appropriate tests, psychotic phenomena and phenomena which are psychopathically merely of a subsidiary order; what I reject is his theory of degeneration and his peculiar views of philosophy."

Material, such as Koch and others offer, must first be elaborated into a pedagogic psychopathology—or better still into a peda-

gogic pathopsychology—before pedagogy, as a whole, can assume in this direction the proper form. Though we consider, now, this preparatory work as indispensable, we can, nevertheless, not think of denying the value of works which, without any profession of far-reaching psychological analysis, put in effective and available form for pedagogy the diseased phenomena of the mental life of children. The first German work of this kind, so far as we know, is from the pen of a Leipsic teacher, GUSTAV SIEGERT, and bears the title *Problematische Kindesnaturen.** This little work is now followed by a more comprehensive treatise, published by a Bremen alienist, Dr. SCHOLZ, already known to the readers of *The Monist* (II, 104), and bearing the title *Die Characterfehler des Kindes, eine Erziehungslehre für Schule und Haus.*† Such books are valuable not only for the observations they offer and the isolated explanations and pedagogic advice they present, but also for the suggestions which the attentive and psychologically cultivated reader can always receive from them.

Like Siegert, Scholz principally shows us isolated child-types wherein diseased qualities play a more or less pronounced rôle. But while the former's presentation is somewhat journalistic in style, that of the latter is more didactic; although this tendency is not an absolutely rigid one, as the author counts mothers as readers of his book. But if the form of presentation leads one to infer greater profundity in Scholz than in Siegert, this is in still higher degree the case with the arrangement of the material. While Siegert strings his child-pictures loosely together, Scholz arranges them according to real psychological points of view, so that (remarkable to say) the faults of children are discussed, first, in the province of feeling and sentiment, then in that of representation, and finally in that of volition and action. The introductory and concluding chapters show, also, that Scholz attempts to enter more profoundly into the subject than Siegert proposes, and we cherish the hope that, now that this popular work has appeared, Scholz will very soon present us with a strictly scientific book, in which he shall have occasion to deal with some

* *Problematic Child-natures.* Leipsic, 1890, Robert Vogtländer.

† *Faults of Character in Children, A System of Instruction for School and Home.* Leipsic. Eduard Heinrich Mayer.

particular points, such as, for instance, falsehood and unchastity, more comprehensively than was perhaps possible in a book intended for his present circle of readers.

With respect, now, to all systematic presentations of pedagogy, psychopathology can, as we have before indicated, never attain in them its proper position, until the above-mentioned preparatory work has been completed. But this fact should not preclude one's calling especial attention to the importance of this province, at least in some incidental manner.

In such a work as the *Allgemeine Pädagogik* of ZILLER, for instance, the third edition of which has just been published by F. Mattes of Leipsic, there surely was abundant opportunity to do this—an opportunity which one might say almost amounted to obligation. For Ziller treats hereditary and acquired characteristics in great detail, and such treatment remains necessarily a one-sided one, if abnormal traits are not considered in it. Ziller, with Herbart, demands that individuality always be taken as the starting-point. But how many child-individualities are there, which, in the different periods of their development, may be regarded as fully normal!

The reason of this omission must be looked for partly in the circumstance, that Ziller, as well as the new editor of this otherwise valuable work, belongs to the Herbartian school. If, namely, we compare the psychological literature of the Herbartian school with the publications of French, English, and American writers, or even with the works which in recent times have issued from other philosophical quarters of Germany, it will be unmistakably seen that the pathological conditions of the mind have been little considered by the followers of Herbart. Nor have voices been wanting, that would make Herbart himself responsible for this error. He did not, they say, sufficiently appreciate the importance of the pathological phenomena of mind, and his pupils were in this respect influenced by him. But this reproach will be found, on close examination, to be untenable. Herbart, it is true, did express himself repeatedly against the over-estimation of "rare and curious phenomena," un-

* Compare also, *The Educational Review* (New York), Vol. II, page 30.

usual mental states and such things,* and his warning is applicable also to our epoch, which produces many psychological works in which remarkable things are to be read but which contribute nothing worth mentioning towards the explanation of even comparatively simple events. Herbart holds, that the psychology of the normal and ordinary states should be the first and principal object of scientific attention; the explanation of much that is extraordinary will then follow. With regard to this latter point, he remarks very positively: "I do not, however, wish by this, to gainsay the value of any real psychological observation. There must be a welcome place in science for every experience." It will be seen, therefore, that Herbart is not at all far from the point of view of Maudsley and other investigators. We find, in fact, that he mentions repeatedly abnormal mental conditions, and also systematically treats them, even quoting such celebrated alienists as Reil and Pinel (*Text-book of Psychology*, §§ 142–149). The probability is, therefore, that psychopathology would have been properly employed in Herbart's psychology, if it had been at all elaborated in his day, and its influence would through Herbart have been directly felt in pedagogy, as no pedagogist has made better or more careful use of psychology than he.

But Herbart's pupils have done no further work in the province pointed out by him. It is true, his psychology has been made use of by physicians like Griesinger and Spielmann, and recently also to some extent by Krafft-Ebing, but the works of these men have had no influence on the psychological text-books of the Herbartian school, and consequently the science has up to the present day exerted no noticeable influence on pedagogy, either in Waitz, in Stoy, or in Ziller. In other pedagogic schools, this has, it is true, also been the case; but in these, who make no pretensions of relying on the teachings of psychology, the sin is more easily pardoned. But this is not the only respect in which Ziller's *Pedagogy* is not up to the times. Ziller defined pedagogy as the influences, formed according to ethical points of view, which are brought to bear on the mind of the pupil, and would not admit influences brought to bear

* *Psychologie als Wissenschaft*, § 5.

on the body, in so far as such should enter into the pedagogic system. This misconception also springs from Ziller's adherence to the Herbartian school, which represents, as we well know, a metaphysical pluralism; but it is in a still higher degree due to the fact, that in Ziller's day both the intimate relation between physiological and psychological processes had not been satisfactorily established, and also were not sufficiently known to him. If it were otherwise, his pluralism need by no means have necessarily led him into such one-sidedness, for this metaphysical pluralism does not exclude a monistic conception of *phenomena*; even assuming this doctrine, one may say that motion and feeling are two different but inseparable sides of the same phenomenon. The "real things" produce by their interaction, simultaneously and of necessity, both an inner side and an outer; for which reason one of our foremost psychologists, Volkmann of Volkmar, explicitly terms Herbart's psychology monistic (*Text-book of Psychology*, second edition, I, 63).

A psychologico-physiological work, from which the new editor of Ziller's *Pedagogy* might have extracted many valuable things, is the book of the Italian Mosso, *On Fatigue*, which has just been translated into German,* and which will excite much attention owing to the present active discussion of the question of overwork.

Supplementary to this work I will also mention a little tract by Dr. Burgerstein of Vienna, entitled *Die Arbeitskurve einer Schulstunde.*† This tract is a lecture, which the author gave at the Seventh International Congress for Hygiene and Demography at London, and in which he seeks to find by statistical methods, the duration of a "school-period"—a very laboriously composed treatise and one difficult to read, but possessed of high interest in psychological and pedagogic respects.

From pedagogy to evolution is but a step, at least it is in Ziller's development of Herbart's ideas. It is true, Ziller has taken a decided stand against Darwinism, for Ziller works with two contradictory ideas; but his theory of education possesses points of re-

* Salomon Hirzel, Leipsic.
† Hamburg, 1891, Leopold Voss.

semblance and analogy to the Darwin-Haeckel theory of development. According to Ziller, each individual passes, also intellectually, through all the stages of development that mankind at large has passed through, only in a shorter time; and it is in conformity with such succession that the order of the various courses of a pedagogical system is to be arranged. Following Ziller's precedent, PROFESSOR VAIHINGER, of Halle, in his treatise *Naturforschung und Schule* (Science and the Schools), has taken up the school-reform initiated by Professor Preyer, and has expressly transferred the fundamental law of biogenesis to pedagogy. How instruction is to be arranged under this point of view, cannot be explained in this letter, which is already long enough. We shall simply remark that the idea has found in Germany a large number of both friends and opponents.

The opponents have recently been joined by a natural scientist, DR. HAMANN, professor of zoology in Göttingen, who has just published a book under the title *Entwicklungslehre und Darwinismus* (Evolution and Darwinism),* in which he does not combat the theory of evolution itself, but simply the Darwin-Haeckelian form of that theory, placing himself in the ranks of His and Hensen. The book appeared almost simultaneously with the fourth edition of HAECKEL'S *Anthropogeny*,† but the author, nevertheless, in his supplementary remarks, discusses the "apology" which Haeckel subjoined to his work. Haeckel's book needs no recommendation in scientific circles; it will be sufficient to state that the work has been subjected to essential alterations, but that its fundamental features have remained the same.

A new psychology, on the Darwinian basis, by Prof. FRITZ SCHULTZE of Dresden, is now in course of publication, entitled *Vergleichende Seelenkunde* (Comparative Psychology‡). The first part, which treats of the fundamental principles of physiological psychology, has already appeared. On the completion of the work we shall have occasion to return to it.

CHR. UFER.

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* Jena, 1892, Hermann Costenoble.

† Leipsic, 1892, Engelmann.

‡ Leipsic, 1892.

CRITICISMS AND DISCUSSIONS.

A LETTER FROM MR. HERBERT SPENCER.

To the Editor of The Monist :

As I feel it a duty to reserve, for other purposes, the very small power of work now left to me, I am obliged to decline entering upon a controversy. I must leave readers to examine for themselves—little hoping, however, that they will do so.

One point only I wish to note. The use of the expression "forms of thought," instead of "forms of intuition," was simply an inadvertence; as will be manifest on observing that though I have used the wrong expression in the note, I have used the right expression in the text (p. 203), as also throughout my criticism of Kant's doctrine in *The Principles of Psychology*, Part VII, Chapter IV, "The Reasonings of Metaphysicians," § 399.

HERBERT SPENCER.

LOGIC AS RELATION-LORE.

In the French *Revue Philosophique*, in the August and September 1891 numbers of the same, M. George Mouret has an essay entitled "Mathematical Equality" in the course of which and as though subsidiary to his ostensible purpose he discourses upon the topics of relations and concepts and upon the fundamental elements of logic in general. His essay is really more important as a contribution to logical doctrine than as a treatment of mathematical equality.

The scope of his discourse will be seen by reference to his closing paragraphs in which he sums up what he considers to be the results achieved by him in his essay. Therein, he says that he has "treated of the general theory of the composition of concepts and relations and set the foundations of the logic of analysis and the logic of definition."

I. THE SPENCERIAN AXIOM.

The determining factor of every philosophical dissertation is of course some very general supposition which is taken as established and which exercises a controlling influence over all the observations of its author.

In this case this determining supposition is found in what M. Mouret calls his "*axiom* of *symmetry*." The same is thus stated by him "*Two things which have the same symmetrical relations to a third thing have between them that same relation.*"

M. Mouret is not one of those scholars that lack hospitality for other writings than those of their own nationality. From this fault so noticeable in the work of so many of the French scholars M. Mouret himself seems to be free. Indeed so far as regards the previous work done in the domain he sets himself to examine, he accords almost exclusive esteem to the writings of English thinkers. In fact he declares himself so far as regards his present topic a disciple of Mr. Herbert Spencer and puts his "axiom of symmetry" as an adaptation of that maxim of his said master which is of the tenor as follows, viz: "*Things which have a definite relation to the same thing have a definite relation to one another.*" This maxim, as Mr. Spencer tells us, was suggested to him by a remark of the late eminent author who is known to the world under the pseudonym of George Eliot, who herself stated it under the form "*Things that have a constant relation to the same thing have a constant relation to each other.*"

Those who are well acquainted with the psychology of Mr. Spencer will recognise that this maxim of his is made by him the very backbone of all his observations upon reasoning. If it has the validity which he imputes to it, it has an importance which it will be hard to overestimate, but if on the contrary, and as we shall submit, it is in every form in which it has been stated, certainly unsound and misleading, it is high time that its virtue should be brought into question.

The *dicta* of the masters whether they first enounce the same or whether they only give currency thereto by their ratification are always proper subjects for special scrutiny. There is always found a disposition to accept them on their mere *ipse dixit* without any attempt at criticism or independent observation. This is decisively *not* the scientific mood or mode. The spirit of that modern leaven that is currently referred to under the name of Science is characteristically a critical one, and one that is considerably irreverent in regard to the authority of mere personality. In this it is happily distinguished from the spirit that has marked the past history of what may be called the "regular" schools of philosophy.

M. Mouret is not alone in his inadvertent esteem for the maxim in question. In the issue of *Mind* for October 1891 Mr. L. T. Hobhouse publishes an article entitled "Induction and Deduction," in which he gives an undue appraisal to the worth of the maxim under consideration, even though the author of the article seems to be well aware that said maxim stands in much need of qualification.

We venture to say that this maxim in all its forms has gained whatever currency it has enjoyed in virtue alone of the incompetent comprehension that too generally prevails in regard to the nature and characteristics of that sort of things that are relations.

A notable example of this lack of comprehension is supplied in the logical treatise of Mr. Carveth Read, a work ostensibly founded upon the significance of the

category of relation and yet in which at the very start the author tells us that a relation is something which is indefinable.

II. IMPORTANCE OF RELATION-LORE.

This topic of relations is one that is neglected in a degree that reflects no credit upon the pretensions of those who undertake to instruct others in matters logical and philosophical. The thing itself is in the thinking of every one and the term and its derivations are in universal use. They are used as though they imported an idea that no one was liable to misapply or to misunderstand. The truth, however, is that of all the stock terms in our graver discourse this very word "relation" and its derivatives are the ones that are oftenest heard and read without any lucidity of mind concerning their proper intent as a part of their context. They are used with an assortment of meanings and non-meanings that are quite distracting to try to follow and quite vain to try and reconcile. In particular the difference between *relationship* and *relation*, between the *ground* or *foundation* of the relation and the relation itself, between the plural fact, whether of tendency, interaction, transition, or *status*, that is a co-condition with the relations, and the relations that co-condition that same plural fact, is constantly ignored in thinking and in the expression thereof, to the more or less confusion in, and inconsequence of, the whole discourse delivered.

It is no slight commendation of the perspicacity of M. Mouret to observe that he has discovered that the way towards a resolution of the problems he sets himself to work out lies through what to him appears the altogether unexplored regions of relation-lore, for it is evident that he regards himself as a pioneer in this field.

III. WORKS ON RELATION-LORE IN THE ENGLISH LANGUAGE.

In observing this we cannot but hold M. Mouret unfortunate in not having been put upon better lines of inquiry. He seems to have been wholly unaware of the treasures of investigation in this domain that exist in the English language and that for many years have been available for the student. His case in this respect is seen in the exaltation which he gives to the semi-popular discourses of Mr. Spencer and Mr. Read, as contrasted with the profound researches of DeMorgan and Boole and their disciples. It is evident that he has judged concerning the comparative quality of the various lines of English research not after an examination of his own, but after the current popular renown. For example, he speaks of the work of DeMorgan and Boole as presenting "only a simple mode of representing some of the logical laws" and as being "surrounded with a formidable and complicated apparel which disguises the value of their tentatives."

Since M. Mouret is manifestly an earnest student of the topic of relation-lore this language shows that he has at best only a second or third-hand knowledge of what DeMorgan and Boole really did. He ought to have known that in the recondite field of research in question all really competent treatment of the same would be very far from having any "popular" quality. For a man to discourse of relation-

lore in ignorance of what DeMorgan, the very father of the "Logic of Relatives," accomplished is like discoursing of Darwinism in ignorance of "The Origin of Species."

We opine that when M. Mouret shall have consulted the great memoir of DeMorgan in the tenth volume of the "Cambridge Philosophical Transactions" or better, when he shall have become acquainted with the more developed work of Mr. C. S. Peirce, to whom beyond question relation-lore is most indebted for its present state of progress, he will have a better esteem for the value of the "tentatives" of DeMorgan and Boole and their disciples. Mr. Peirce has published three principal papers on the subject in question. The first of these was published in 1870 in the ninth volume of the "Memoirs of the American Academy of Arts and Sciences." Then in 1880 and in 1884, while Mr. Peirce was lecturer on logic at Johns Hopkins University, he published in the *American Journal of Mathematics* two papers dealing more or less extensively with relation-lore. One of these his "*Hauptwerk*" as it is called by Professor Schroeder of Carlsruhe, appears in the third volume of the journal mentioned and the other in the seventh volume of the same. Mr. Peirce was one of the contributors to our new American "Century Dictionary," and in that work under the definitions of Relation and Relativity there appears a summary treatment of the subject which is as we take it the work of Mr. Peirce and which might have given to M. Mouret hints which he would have appreciated. Also the editor of this magazine in his article "Are there Things in Themselves?" in the January 1892 number thereof incidentally touches upon the topic under consideration in such a way as to correct some of the more inveterate misconceptions.

IV. M. MOURET'S THEORY OF RELATIONS.

The article of M. Mouret is in so many points so excellent a discourse that the chief reflection one is inclined to make is that upon its own principles it ought to have been better. He seems to have been widely awake to the primordial nature of relations as philosophical data. He says: "Every notion or relation is a *function* of relations more directly known and enters as a relational element into other relations less proximate to the common sources," and also that "every concept or notion ought to resolve into a group of relations."

By such tokens as these we naturally look to see M. Mouret making it his very first concern to explain fully the nature of those primordial data that are relations. Indeed he seems himself to be fully aware of this natural expectation for he says: "What then is a relation; what is a concept or notion? To this double question an answer is necessary and a precise answer not consisting in the substitution of one form of words for another form of words bearing the same meaning or no meaning at all."

We cannot however find that he has done this. Instead of it and almost while saying that every concept and notion ought to resolve in a group of relations

he announces, "What I have to examine is the constitution, the structure of these *relation-generating groups*." Thus he starts with a synthesis when what is needed is analysis. He starts with supposing a group of relational elements indeterminate in number and proceeds to inquire as to the conditions that must subsist with regard to them, respectively and in combination, in order that a *definite* relation may subsist as to a pair of the relational elements. These conditions he finds to be four in number. First, he finds that—

"It is necessary that every one of the terms of the group should be connected one to the other by *definite relations;* that between any two terms there must always be intermediate terms that connect them in a continuous way." This he calls the condition of "Solidarity." Secondly, he finds that there must obtain the condition of *Co-Existence*. By co-existence he intends—

"Not a definite co-existence in time, that is to say, a relation of simultaneity or concomitance, nor yet that established co-existence which constitutes the causal relation, but an indefinite co-existence independent of the order of its terms and of all consideration of time or duration."

Having thus supposed his group all well stocked with relations, he proceeds to relegate most of them to the limbo of inconsequence by invoking a *principle* which he calls the principle of *indetermination*. By virtue of this principle in every particular case the *particular determinations* of all the terms become indeterminate and those of the intermediate terms doubly so. Thus the supposed facts of the case become fit for the existence of the *Third* condition, that of *Abstraction*, and for the arising of a general concept or notion.

But corresponding to every concept or notion is its negative or opposite concept or notion. As this negative depends necessarily upon certain *particular determinations* of the same terms that bear the *particular determinations* and which being singly indeterminate admit of the positive concept or notion, there necessarily must obtain two systems of singly indeterminate *particular determinations* relative to but incompatible with one another, and so relative that the negation of one set entails the obtaining of the other set, or in other words either set being negated entails the obtaining of the other set. These facts constitute what M. Mouret calls the *principle* of *incompatibility* and involve his *Fourth* condition of *Relativity* stated by him as follows:

"All the particular determinations of the extreme terms must not be compatible with the system and the negation of certain relations of the system must entail the negation of the relation which they make between the extreme terms."

V. REFLECTIONS ON M. MOURET'S THEORY.

Now we cannot regard this as a successful attempt to explain the nature and characteristics of relations, or to unfold the involutions of relation-lore.

We fully realise that if every concept or relation resolves into a group of relations we must in some form or other take what are relations in reality as data to be-

gin with, but this does not prevent us from taking our datum terms for our turn of explanation as not requiring at present any recognition other than as relational elements. What is needful as a prime requisite on the very start of any research in relation-lore is to obtain a clear idea of what is meant by a relation. Meanings are primarily matters of mental status. We have to determine the relation that subsists between the mind and the object through the mediating interpretation of a word, and the mental affection lies nearest and logically comes first. It may very well be that the mental affection requires correction, but this cannot take place until its faults are observed, and these cannot become evident until the mental affectionis itself duly understood.

The disciples of that school of logic in which De Morgan and Boole, both eminent mathematicians, hold so exalted a rank as discoverers, regard cognition as arising in consequence of brain functioning or *mental operation* and study the results of this operation as yielding their import in dependence upon and only in dependence upon the proper operation in virtue of which they arise.

Now no cognition whatever, even of the most elementary sort, arises except in connection with and in consequence of that operation of the sensibility which is *distinction*. Distinction is of multitudinous and manifold aspects. In all its phases whether it be passive or active it is naught else than the arising or the assigning of relations. The attempt to posit an unqualifiedly absolute—that is, an unqualifiedly unrelated—universe of discourse must be futile and blank, necessarily and insuperably. Any form of notation that pretends to express such a universe of discourse, is only saved, if at all, from being unqualifiedly nonsensical, by standing as antithetical—that is, by being *related* to forms of notation that express relation and nothing else than relation. This rigorously prime operation of distinction is not only pure relation-ing but it is of that sort of relation-ing that is at once a distinguishing and a conjoining. The "One and the Many" are insuperably implicit therein. Distinction having operated to various extents, and thereby various relations having come into view, we become aware of those items of experience that are objects or facts. Each and every one of these objects or facts are in truth distinguished and are therefore in no strict sense *indiscernible* from each other, but since no science can possibly obtain in relation to mere particulars we find it useful to disregard various points of distinction that obtain in respect to various objects and facts and to converge our regard upon the points wherein distinction, not absolutely vanishes, but *tends to vanish*.

By this operation, which is *abstraction*, various objects and facts become in mental regard fit and useful to be taken as copies of one another and as indifferent for use in most of the turns of mental life.

There are indeed various relations, objects, and facts, with respect to which no further operation or operations of distinction than the mere distinctions of the time, the place, or the occasion of their various manifestations have been applied nor can without great difficulty be applied. But we are therefore by no means entitled

to say that such are in truth irresolvable. Contrarily, and reasoning inductively we are justified in concluding that every relation, object, and fact will under analysis of adequate power resolve without limit into other relations, objects, and facts.

We are not yet prepared to see that the ultimate components of relations, objects, and facts resolve into relations, and nothing but relations, because we are not yet prepared with an explicit idea of the nature and characteristics of these elementary objects.

The study of M. Mouret since it starts with relations combining them under the conditions of Solidarity Co-Existence, Abstraction and Relativity, (which are nothing else than other relations or compounds of relations,) does not seem to us to advance us at all in the most fundamental requisite. He says no more than to say that in order for the groups of relations to generate further definite relations the relations thus grouped together must be related to one another and then that most of these relations must be disregarded.

M. Mouret distinguishes, with respect to a relation three factors, the *Matter*, or the relational elements grouped together, the *Form*, or the order in which the relational elements are arrayed, and the *Foundation*.

As his study of the topic of relations is professedly for the purpose of enabling him the better to solve the nature of the relation of mathematical equality, his success may be estimated by reference to his conclusions in regard to that relation. These are as follows: "The relation of equality is formed of undetermined matter, it possesses a binary form, and has for a condition a relation of indiscernibility between the two elements."

Such conclusions appear to us to be impotent not to say erroneous. If two things obtain at all, they obtain as two and not one, in very virtue of being distinguished the one from the other. Except with regard to some more or less arbitrary distinctions, like the distinction between co-incident points, all distinctions obtain only in virtue of some relation that can be nothing else than a point of *discernibility*. Numbers and other mathematical things are taken as not-different not because they are in truth indiscernible but because for the turn in hand their points of difference are irrelevant.

Concerning the much mooted question of the proper field of logic as a science M. Mouret holds it to be the "science of relations and general concepts." Although we hold that logic is particularly concerned with the lore that is more directly related to the phenomena of erroneous thinking and its correction, the view of M. Mouret is not unacceptable. "Reasoning consists in the observation that where certain relations subsist certain others are found," as Mr. Peirce has remarked.

VI. CONCERNING MEANINGS AND EXPLANATIONS.

As preliminary to our account of relations we will make an observation which seems to us of considerable use in connection therewith. It is not without its bear-

ing on the theory of definition or rather upon the broader theory of explanation. With M. Mouret we hold that every concept and relation resolves into a compound of relations. Since relations are data that are absolutely elementary at least so far as we are at present instructed they are of course not subsumable under any other sort of data that are better known. Moreover, whatever explanation we here make must needs be made by means of written words. Thus an important question arises as to what method is to be pursued in this special exigency. The theory of definition leads us to the same difficulty, for although the meanings of many words can be defined in terms that are more proximate to the elementary relations, we will always come at last to terms that admit of no improved explanation by such a method. There is no device of words that can evade or supersede the ultimate recourse to things. Now the significations of words are learned in most cases not so much by definitions and verbal descriptions as by *the observation of the various applications of the words*. Indeed this is the primitive way in which the meanings of words are found out. The child knows nothing of what, say, the word *horse* means until some one shows it an actual horse and may be pointing to it says repeatedly, *horse*, in such a way as to excite the observation of the child to the intended application of the word to the thing. This is because the relation of every general sign to its object subsists only in consequence of a mental association, and until this mental association is created the sign has no meaning. The methods of evoking these mental associations are at present quite unmethodical and do not receive the attention which their importance merits. One feasible method is to present or to state a number of scenes that shall present the object in various ways in connection with the sign thereof, and thus to excite attention to the proper application of the sign. The geometer does this by means of his diagrams without which or their mental counterparts all his mere words would be in vain.

Mr. Edward T. Dixon has lately published a work on the "Foundations of Geometry" in which he would introduce as a fundamental datum what is really an altogether new and exceedingly abstract conception which he calls by an old name, that of *direction*. The old term has never been as yet taken in any abstract universal sense because apart from definite right lines showing it as an attribute any abstract universal meaning is wholly unassignable. But the conception that Mr. Dixon would instal is removed in abstractness from such a universal yet one more step in universality. A three-fold infinity of right lines differing in direction can be drawn in ordinary space to each of which pertain two corresponding universals of direction, one converse to the other. Now the conception of direction that Mr. Dixon proposes for service as an elementary geometrical datum is the universal that subsumes all these lower ranking universals as particulars. Of course he has difficulty in even trying to explain what he means. Realising the impossibility of subsuming it in any way he takes a method which if it were more thoroughly applied, and wholly emancipated from the lingering notion of definition, might have been more successful. As he actually left the matter his real meaning

can only be drawn from close study of the way in which he applies the term in his discourse in general.

Owing to its excessive abstractness his conception is wholly unfit for service in elementary geometry. One has to become a good geometer before the conception can even be approached.

VII. ANOTHER THEORY OF RELATIONS.

We shall proceed to explain what we regard as a true and adequate notion of a relation by stating some scenes that display the same. We do not regard it as needful to state many of them and we take for our first one, the common transaction of making a donation. We have here for relational elements or terms as they are usually called a set of three. Separately, or as not yet brought into relation in virtue of the giving, there may be, say G an owner of W a watch and R the intended beneficiary. The plural fact of the giving is the *relationship* or the *foundation* of the *relations* that arise in virtue of said giving. This *foundation* becomes to be in virtue of the creation of such relations by the giving. Either one of the set of three may be taken as the datum of reference and according to the election in this respect, the relations may differ and the technical names we are about to give will vary in their application. Since simplicity will be gained thereby and also our present turn fully subserved we will take G as the datum term of reference. So taking it G is called the *relate* and both W and R are called the *correlates*. For this present turn and in very virtue of the giving and only in virtue thereof G becomes related to W and R in a certain relation one of the names of which is giver. When W or R are taken as relates certain other relations appear, some of the names of which are respectively *present* and *recipient*. In relation to the relation of giver the relations of present and recipient are named *converse* relations, as are likewise the relations of present and giver to the relation of recipient and the relations of giver and recipient to the relation of present. Here are three distinct relations growing out of the same relationship or foundation. As each relational element has its corresponding negation, the true logical system of a set of three terms involves not less than eight relations.

We take for our second scene the case of a boundary. This might be a surface or a point but we will take the special case of a line on a surface. Here we have again a set of three, the spread on one side, A, the opposite spread, B, and the line L. A has a certain relation, say above, to L and B, B has the certain relation, below, to A and L, which relation is converse to the relation above: and L has the certain relation, boundary, to A and B which relation is converse to the relations above and below.

The two examples now given are cases of the *conjugative* kind. The relationship is a conjugative one and the relations are conjugative relations. The distinguishing characteristic of a conjugative case is the fact essentially involved of the mediation between relational elements by another certain element, or in other

words the bringing of diverse relational elements into relation by the function of another relational element. Without the mediation or function of this conjugating element neither the relationship nor the conjugative relations can exist. There is reason to believe that all conjugative cases can be certified as cases of three relational elements or as compounds of a number of such sets of three. To ordinary uncritical thought which is largely constrained by the trammels of ordinary language the most abundant sort of relations appears to be of that sort that are taken to involve only two relational elements. These are cases of what are called *dual* relationships and the relations that arise out of them are called *dual* relations. Such are those like father, son, husband, wife, etc. Strictly viewed they ought to be regarded as *degenerate* relationships and relations just as a pair of lines is regarded as a degenerate conic.

VIII. CAUTIONS AND APPLICATIONS.

Now besides the error of confounding relations with relationship, it is a very common fault to think and speak of a relation as being *between* two or more terms. This imports into thought the thoroughly misleading idea of an intervening independent existence for relations. Relations are attributive predicates of terms and each one of them pertains strictly to its proper term or combination of terms, in the same sense for this turn (*pro hac vice*) that qualities are held to pertain to their so-called substances. And yet relations so pertain to their proper terms not in virtue of such terms separately but in virtue of their membership in the plural fact which obtains as the *relationship* or *foundation*. The notion of a relation as a "betweenness" has perhaps been fostered by the exact coincidence of relations pertaining to the several members of the same relationship. When on contemplating the connection, say of two points, we observe that the distance of one from the other is apparently indistinguishable from the distance of the other from the one, we naturally overlook the fact that we are truly to regard the connection as the coincidence of two really distinct relations, and regarding the pair of relations as one thing and finding it not attributable to one point more than to the other we dissociate it from both. But when we consider a pair of relations that are converse to one another and that arise out of a dual relationship like that of husband and wife we may see that there is *no* betweenness, no single relation that interlies, but two relations, one the relation of husband and the other the converse relation of wife.

An interaction, say like that of approach under the influence of gravitation, is a relationship. Each body stands in the relation of a *puller* of the other and the mediating term which we find impossible to argue out of the account we call the attraction of gravitation. In this case the relation of action of the one body is not usually distinguished from the relation of action of the other one. Indeed this is the case in all cases of mechanical action and we lay it down as a maxim that action and reaction are equal but they are not alike since their directions are opposite.

Sensation is a relationship, since it is our interaction. The object interacts with the brain. As to the conjugating term we are as yet in the dark and so we are in the habit of regarding this case as a dual relation. The relation of the brain to the object is that of a *knower* and that of the object to the brain that of a *stimulater*. Each character or mark of the object that becomes apparent gives rise to relations and their respective converses each correlative pair of which are respectively so many distinct interactions of detail in the entire interaction. Whatever an object as known to us is, it is in virtue of those relations of brain action and detailed object stimulation, which are relations and always relations. Since consciousness exists only by the arising of relations of distinction, supposably in consequence of internal brain interaction, is it presumptuous to allege that consciousness consists of relations or a complex of relations?

IX. NATURE OF OBJECTS.

With regard to the object no one can prevent whoever may be so disposed, from imputing to it various points of possession that do not and cannot interact with the brain. So far as such imputed points are regarded as merely not yet interacting but possible to interact with knowing substance such points in no wise differ in essential nature from the known attributes. They are potential relations and nothing else. But in so far as they are regarded as essentially impossible of ever interacting with knowing substance in any possible stage of its development such regard is pure nonsense and utterly without any assignable meaning. There is no occasion whatever for such an imputation, for the existence of interaction actual or potential is fully adequate to explain all that will ever present itself to be explained.

At this point let us instruct ourselves with an example of the reasonings of a much and deservedly honored philosopher. He says:

"In the most general predicate which is *determined* Being or *existence*—for all things in the universe are determined beings—we have an evident two-foldness (a composite nature) which allows of a further analysis into pure Being and determination."

We will parallel this analysis. For the sake of simplicity we will take a limited right line. It has the determinations straight and long, not length in the sense of measure, for length is ambiguous in its intent, but length in its qualitative sense—its linearity so to speak. Now separate from it first its straightness without however giving to it any other determination, and then its quality of longness. We have then a *pure* line, that is neither straight, nor long, nor anything else. Such is an example of "Pure Being." *We* say however that its very being as a line is absolutely dependent on its determination as a long line; that such a determination alone constitutes it a line, is at once its determination and its being, that there is no two-foldness at all but only two names, and that as one-fold its determination as long and its being vanish together. What is true of a line is true of all relations and compounds of relations whatever.

Thus not only all knowledge but all existence so far as that term can ever have any meaning is relative; relative to all intents and for every possible turn.

To those who accept the essentials of this account of relations it will be easy to see what is the nature of an object and that of a concept or notion. An object is a relation or some congeries of relations that usually present themselves as a coherent whole to our sensibility or to consciousness. This is primarily effected in virtue of some efficacy which we cannot appropriate to ourselves, and so we distinguish our own personality from that manifold that we call the objective world. It is pure self-stultification after having made this most useful distinction to try and abolish it. Nothing but an utter abolition of all useful thought can result from so taking the data of experience.

X. NATURE OF A CONCEPT.

But objects are individual and generally found with various points of distinction some of which are irrelevant to most of the turns of mental life. We therefore neglect the irrelevant points and take many objects as copies of one another. This process is *not* the formation of the concept or notion but it suggests and prompts that formation. We cannot but regard it as an error to take a conception as a *sum* of individuals. It seems to us to be rather in the nature of a *locus*. A curve contains an infinity of points and yet the curve is not any sum of points even though it is often allowable to speak of it as the sum of all its points. So any concept, say, man, is not all the men that now live nor yet all the men that eternity both backwards and forwards has contained and will contain. A concept is a manifold and strictly universal and infinite in respect to the particulars it subsumes. We speak of the infinitive mood of a verb because the meaning of the word as thus taken is not put under any modification. In like manner the meaning of any concept though subject to various limitations in its applications is as a concept merely to be regarded as obtaining in a purely infinitive sense. Professor Jevons found a difficulty in classifying what he called *material* terms, such as stone, sand, water, etc. Other logicians have put such terms as singular terms, while still others have classed them as general terms. There is a great variety of such terms. Potatoes, wheat, butter, ice, cattle, water, hydrogen, the names of all the elements, ether, electricity, time, space, love, virtue, etc., are instances. It seems to us that such terms are the normal types of general terms and that the canonical forms of our universal propositions ought to be unquantified not only as regards the predicates but also as regards the subjects. Why not "man is animal" just as "lard is grease" or "man is mortal" just as "butter is cheap"?

Moreover the distinction between a general concept and one that is called singular is only one of degree and not of kind. Every so-called singular term is potentially at least only an individual instance under a possible general or universal concept. A striking example of this potentiality is furnished by the modern generalisations of that formerly singular term, space. If these observations are well

founded, the universals of thought even though arising out of the facts of experience and rigidly beholden to experience for every last element out of which they are constructed, form nevertheless a Formal-Thought-World, and the mind of man in virtue of its powers of imaginative construction and generalisation has a constitution that enables it to subsume the actual objective universe as only one particular of a universality of a higher rank.

Under such a conception of the objective world and the world of thought and their relations the old dispute of realism versus nominalism would take a new aspect. *Universals in re* even though they were admitted to exist would become universals no longer in the higher universe of thought. True universals would only subsist as universals of the world of mind. The laws of Form and Formal Thought would thus become of chief moment in philosophy and no one could be recognised as properly laying claim to the title of philosopher without proficiency therein.

XI. FALLACY OF THE SPENCERIAN AXIOM.

Concerning the "axiom of symmetry" only a few examples of its fallacy are needful. Mutual friendship is certainly a "symmetrical" relation, but *A* and *C* may be mutual friends and *B* and *C* mutual friends also, but it in no wise follows that *A* and *B* are friends. They may be decidedly unfriendly as we often see the case. Take a case of equilibrium the cases of which seem to be favorite ones with M. Mouret. We suppose that planets may be regarded as in a relation of equilibrium with the sun and yet these mere equilibrations with the sun do not make any equilibrium between them. They do not knock together it is true but this is due to their own direct relations and not their relations of equilibrium with the sun.

The distances of points from each other is a "symmetrical" relation and yet point *A* may be from point *C* the very same distance that point *B* is from *C*, but the distance of points *A* and *B* from one another may vary from coincidence to double the distance *A C–B C*.

XII. NATURE OF ARITHMETICAL EQUALITY.

Concerning the relation of "mathematical equality" there is no single relation that obtains throughout mathematics as such. There is numerical equality upon which the equality in service in numeric algebra is founded, and there is geometric equality, the equality of vectors, etc., all different from one another. M. Mouret seems to have only numeric equality in view. He claims this relation to be not only of a very simple nature but that it is the very foundation o the notions of magnitude and quantity. He even declares that mathematics could not exist without this relation. Did he lose sight of the usual proof of Fourier's celebrated theorem?

As we have explained, things that are distinguished are not really alike but only for certain turns taken to be so. This assimilation of things is of various grades. In arithmetic, meaning arithmetic in its most general sense, the only logical comprehension that the various numbers possess is respectively their greater

or less partitionability; m is the same as n means in arithmetic that whatever has the numerical rank of m has also precisely the numerical rank of n no matter what summations or other numerical operations m or n may represent. Identity of this sort is arithmetical equality. It seems a simple relation for the reason that its intervention very decisively simplifies our arithmetical comprehensions. It is however a coincidence of two relations that are converse to one another. These relations are "not less than" and "not greater than." It is universally admitted that the more inclusive a notion or concept is in extension, the more simple and primary it is than any other notion or concept included as an instance under it. Now all equality is "not less than" but not all "not less than" is necessarily equality; hence, "not less than" is a wider and more primary notion than equality. On the same considerations "not more than" is in the same case. Equality is the limiting case between the variable and logically more simple cases of "not less than" and "not more than." The notion of quantity emerges on comparison however vague between any two objects that have size, independently of the notion of equality. If this were not true how could we have the notions of infinitely large and infinitely small.

It is indeed true that without the notion of equality the theory of numbers and the mathematical analysis could subsist in a rudimentary state only, but to say that they would not exist at all is rash and not maintainable. The relations "not less than" "not more than" would still allow of some truly mathematical propositions, operations, and calculations. In that essentially qualitative notation that is ordinary language the relation that corresponds to equality is of very limited range but a relation that is analogous to "not less than," viz., supersumption, is very efficient.

With a theory of numbers and a mathematical analysis using only the relations "not less than" "not more than" in lieu of the relation of equality the fundamental operations, addition and substitution, would find some scope of application and hence the derivative operations, multiplication, powering, etc., and their inversions, subtraction, division, etc., would obtain in some fashion and to some extent. This can readily be seen by any one who is familiar with the way in which expressions of inequality are used in modern mathematical analysis.

FRANCIS C. RUSSELL.

OBSERVATIONS ON SOME POINTS IN JAMES'S PSYCHOLOGY.

II. EMOTION.

Nothing in Professor James's work will be likely to strike the average reader as more paradoxical than his views on the subject of Emotion, which he must be allowed to state in his own words. After premising that he will limit his discussion, in the first instance, to what may be called the coarser emotions, as fear, grief, rage, love, in which every one recognises a strong organic reverberation, he goes on to say:

"Our natural way of thinking about these coarser emotions is that the mental perception of some fact excites the mental affection called the emotion, and that this latter state of mind gives rise to the bodily expression. My theory, on the contrary, *is that the bodily changes follow directly the perception of the existing fact, and that our feeling of the same changes, as they occur, is the emotion.* Common sense says, we lose our fortune, are sorry and weep; we meet a bear, are frightened and run; we are insulted by a rival, are angry and strike. The hypothesis here to be defended says that this order of sequence is incorrect, that the one mental state is not immediately induced by the other, that the bodily manifestations must first be interposed between, and that the more rational statement is that we feel sorry because we cry, angry because we strike, afraid because we tremble, and not that we strike, cry, or tremble, because we are sorry, angry or fearful, as the case may be. Without the bodily state following on the perception, the latter would be purely cognitive in form, pale, colorless, destitute of emotional warmth. We might then see the bear and judge it best to run, receive the insult and deem it right to strike, but we should not actually *feel* afraid or angry.

"Stated in this crude way, the hypothesis is pretty sure to meet with immediate disbelief. And yet neither many nor far-fetched considerations are required to mitigate its paradoxical character, and possibly to produce conviction of its truth.

"To begin with, no reader of the last two chapters will be inclined to doubt the fact that *objects do excite bodily changes* by a preorganised mechanism, or the farther fact *that the changes are so indefinitely numerous and subtle that the entire organism may be called a sounding-board* which every change of consciousness, however slight, may make reverberate. . . .

"The next thing to be noticed is this, that *every one of the bodily changes, whatsoever it be, is* FELT, *acutely or obscurely, the moment it occurs.* . . .

"I now proceed to urge the vital point of my whole theory, which is this: *If we fancy some strong emotion, and then try to abstract from our consciousness of it all the feelings of its bodily symptoms, we find we have nothing left behind,* no 'mind-stuff' out of which the emotion can be constituted, and that a cold and neutral state of intellectual perception is all that remains. It is true that, although most people when asked say that their introspection verifies this statement, some persist in saying that it does not. Many cannot be made to understand the question. When you beg them to imagine away every feeling of laughter and of tendency to laugh from their consciousness of the ludicrousness of an object, and then to tell you what the feeling of its ludicrousness would be like, whether it be anything more than the perception that the object belongs to the class 'funny,' they persist in replying that the thing proposed is a physical impossibility and that they always *must* laugh if they see a funny object. Of course the task proposed is not the practical one of seeing a ludicrous object and annihilating one's tendency to laugh. It is the purely speculative one of subtracting certain elements of feeling from an emotional state supposed to exist in all its fulness, and saying what the residual elements are. I cannot help thinking that all who rightly apprehend this problem will agree with the proposition above laid down. What kind of an emotion of fear would be left if the feeling neither of quickened heart-beats nor of shallow breathing, neither of trembling lips nor of weakened limbs, neither of goose-flesh nor of visceral stirrings, were present, it is quite impossible for me to think. Can one fancy the state of rage and picture no ebullition in the chest, no flushing of the face, no dilatation of the nostrils, no clenching of the teeth, no impulse to vigorous action, but in their stead limp muscles, calm breathing and a placid face? The present writer, for one,

certainly cannot. The rage is as completely evaporated as the sensation of its so-called manifestations, and the only thing that can be supposed to take its place is some cold-blooded and dispassionate sentence, confined entirely to the judicial realm, to the effect that a certain person or persons merit chastisement for their sins. In like manner of grief: what would it be without its tears, its sobs, its suffocation of the heart, its pang in the breast-bone? A feelingless recognition that certain circumstances are deplorable, and nothing more. Every passion in turn tells the same story. A purely disembodied human emotion is a nonentity." (P. 449 seq.)

It is, of course, impossible for me to give all the arguments by which Professor James attempts to establish his position; the above quotations will make it clear what it is—namely, that all our "feelings" are sensations.

Before proceeding to consider some of the objections to this view of the matter, it may be well to notice briefly what seems to be a gap in the author's treatment of it. In adult human beings, very few, comparatively, of what are ordinarily recognised as emotions follow directly upon the perception of their objects, in the ordinary sense of the word. His theory might perhaps suffice, without further explanation for such cases as the "spitting" of blind kittens at the smell of a dog, or the rage of a bull at the sight of a red cloth, or the startled feeling that we experience at a loud and unexpected sound, if the latter should be called an emotion. But in the immense majority of instances the emotions of which he treats arise in a very different way.

Some of his own illustrations will serve as well as any to show this. For instance, neither running nor any other of the symptoms of fear which he enumerates is the necessary result of seeing a bear. A chained or caged bear may excite only feelings of curiosity, and a well armed hunter might experience only pleasurable feelings at meeting one loose in the woods. It is not, then, the perception of the bear that excites the movements of fear. We do not run from the bear unless we suppose him capable of doing us bodily injury. Why should the expectation of being eaten, for instance, set the muscles of our legs in motion? "Common sense" would be likely to say it was because we object to being eaten, but according to Professor James, the reason we dislike to be eaten is because we run away. So, again, striking is not a reflex act, following on the hearing of an insult as sneezing does on taking snuff. Whether the muscular movements or the emotions are the primary thing, what both shall be depends on many things besides the words that are spoken. To be accused of drunkenness or unchastity, for instance, would dispose some persons to violence, but others might feel only the stirrings of pride at what they would consider a tribute to their manhood. In those who considered such a charge opprobrious, it might excite feelings of amusement, contempt, pity, or grief towards the one making it, according to the estimation in which he was held. To say that if it makes us strike we shall be angry, if it makes us laugh we shall be amused, if it makes us weep we shall be grieved, does not go to the bottom of the matter. According to the theory, the thought of the estimation in which we

are held by others is, in itself, entirely indifferent to us, and only affects our feelings through the muscular movements it excites.

In view of the variety of these movements in response to the same physical stimulus in a case like this, the statement that objects excite bodily changes by a preorganised mechanism explains nothing. We want to know why in one case a given perception excites one set of movements, and in another an entirely different set. Without attempting to decide whether or not a satisfactory explanation can be given on Professor James's hypothesis, I will only say, that, so far as I can see, he nowhere attempts it. In his section on "The Genesis of the Various Emotions," (pp. 477 seq.), he only discusses the question how the various feelings come to be associated with their respective movements. How the movements come to be associated with the perceptions, he does not discuss at all.

Turning now to the considerations which Professor James urges in support of his theory, quoted above, the first two—that objects excite bodily changes and that these changes are more or less distinctly felt—may pass unchallenged. I am disposed to go as far with him as to admit that these feelings, in the cases which he describes, may properly be considered components of the emotional state. But when he affirms that there is nothing else—that if we subtract our consciousness of peripheral sensations there would be no emotion left—it seems to me that he is going very much too far. I should have no hesitation in saying that such a statement of the case is contradicted by my consciousness, but as that would be merely setting up my consciousness against his, without the possibility of an umpire, I will call attention to some other considerations which seem to me to render it improbable.

In the first place, it is to be noticed that the cases he instances in illustration of his position are all of violent emotions. Admitting that we cannot have these emotions, in such degree, without movements such as he describes, nor even imagine how they would feel if such a thing were possible, it does not follow because they cannot be separated that they are identical. We do not reason in this way in regard to those feelings which are not commonly called emotions. I can no more imagine myself in intense bodily pain without a tendency to groan and writhe than deeply grieved without a tendency to weep, and yet no one, probably, would say that the pain consisted solely in my consciousness of the groaning and writhing. If grief is a kind of pain, it is to be expected that, in a high degree, it will produce bodily movements more or less similar to those excited by other sorts of pain. All these emotions, however, are capable of infinite gradations in intensity. The fear of losing one's pocket handkerchief is an emotion of the same kind as the fear of losing one's fortune. In Professor James's description of fear, it is evident that he has abject terror in mind. I hardly think it probable that he has any such sensations, when he fears, for instance, that he will be late to dinner, and yet he must be differently constituted from many of his fellow-men if his state of mind in such a case is merely a cold, intellectual cognition of the fact that such a state of affairs would be undesirable.

The same is true of the other emotions he mentions. The feeling of the ludicrous is, perhaps, the strongest case he cites, but in my own case slight degrees of amusement do not excite laughter, or even any conscious disposition to laugh. There is, at the most, in such cases, a tendency to smile, which may be overpowered by some other emotion, without in the least impairing my feeling of amusement. It seems to me certain that slight degrees of all the emotions mentioned may be unaccompanied by any distinct consciousness of reflex movements. In such cases it is only by a pretty strong effort of attention that we are able, if at all, to determine what the bodily changes are, although we are distinctly aware of the emotion.

Again, it is to be noticed that many actions, similar in character to those we have been considering, are not associated with what are commonly called emotions. Laughing and sobbing, for instance, are spasmodic movements of the muscles of respiration, not strikingly different from hiccuping, and there seems no good reason why the consciousness of the former two should usually be felt as strong emotional excitement, while the latter is not. In some cases, movements identical with those accompanying particular emotions may occur entirely independently of them. Shivering from cold, for instance, is the same sort of a movement as may occur in violent fright, but it does not make us feel frightened. The laughter excited in children and sensitive persons by tickling of the skin is not necessarily accompanied by any mirthful feelings. The act of vomiting may be the accompaniment of the most extreme disgust, or it may occur without a trace of such emotion. Professor James himself gives an instance of this sort that can hardly be bettered:

"The writer well remembers his astonishment, when a boy of seven or eight, at fainting when he saw a horse bled. The blood was in a bucket, with a stick in it, and if memory does not deceive him, he stirred it round and saw it drip from the stick with no feeling save that of childish curiosity. Suddenly the world grew black before his eyes, his ears began to buzz, and he knew no more. He had never heard of the sight of blood producing faintness or sickness, and he had little repugnance to it, and so little apprehension of any other sort of danger from it, that even at that tender age, as he well remembers, he could not help wondering how the mere physical presence of a pailful of crimson fluid could occasion in him such formidable bodily effects" (p. 457).

Here we have a condition such as is sometimes experienced in connection with the most extreme degree of fear or grief unaccompanied by any emotion except astonishment at its occurrence. I presume that if a person should faint on hearing bad news, Professor James would consider that one of the causes of his intense emotion. Why did it have no such effect in this case?

Assuming that the emotions are the effects and not the causes of what are usually reckoned as their "expression," it seems evident that a given movement or set of movements must uniformly, at least in the same subject, give rise to the same feeling, and that in the case of opposite emotions such as joy and grief, hope and fear, the more intense the emotion, the more unlike must be the actions from which

it arises. Neither of these is the case. On the contrary, it would seem to be the fact that the actions accompanying emotion tend to become more alike in proportion to its intensity. It is not at all uncommon for people to weep from excess of joy as well as of grief. Pallor and trembling are frequent accompaniments of the extremes of hope as well as fear. The naturalist Wallace gives an account of his feelings on capturing a rare and beautiful butterfly, which is worth quoting in this connection:

"The beauty and brilliancy of this insect are indescribable, and none but a naturalist can understand the intense excitement I experienced when I at length captured it. On taking it out of the net and opening the glorious wings, my heart began to beat violently, the blood rushed to my head, and I felt more like fainting than I have done when in prospect of immediate death. I had a headache the rest of the day, so great was the excitement produced by what will appear to most people a very inadequate cause" ("Malay Archipelago," p. 342).

Here it is evident that a feeling of intense exultation gave rise to sensations very similar, to say the least, to those of extreme fear.

One other argument brought forward by the author deserves special notice in this connection:

"The best proof that the immediate cause of emotion is a physical effect on the nerves is furnished by *those pathological states in which the emotion is objectless.* One of the chief merits, in fact, of the view which I propose, seems to be that we can so easily formulate by its means pathological cases and normal cases under a common scheme. In every asylum we find examples of absolutely unmotived fear, anger, melancholy, or conceit, and others of an equally unmotived apathy, which persists in spite of the best of outward reasons why it should give way. In the former cases we must suppose the nervous machinery to be so 'labile' in some one emotional direction that almost every stimulus (however inappropriate) causes it to upset in that way, and to engender the particular complex of feelings of which the psychic body of that emotion consists. Thus, to take one special instance, if inability to draw deep breath, fluttering of the heart, and that peculiar epigastric change felt as 'precordial anxiety,' with an irresistible tendency to take a somewhat crouching attitude and to sit still, and with perhaps other visceral processes not now known, all spontaneously occur together in a certain person; his feeling of their combination *is* the emotion of dread, and he is the victim of what is known as morbid fear" (p. 458).

Now, it is evident, of course, in such a case as this, that such a combination of feelings as is here described is not a fortuitous coincidence of so many independent sensations. They must have a common starting-point, which cannot well be elsewhere than in the brain. But if this is the case, it seems to me to be begging the question to assume that the sensations and not the emotion are the primary thing. On the assumption that fear, in the normal condition, is the cause of the disturbances of respiration, circulation, and the like, which accompany it, it is as easy to formulate normal and pathological cases under a common scheme, by supposing it to be the cause of the like disturbances in cases of morbid fear, as on the theory of Professor James.

It seems to me, then, that the theory does not satisfactorily account for the facts, so far as the involuntary, reflex accompaniments of motion are concerned.

The difficulty is greatly increased when we consider the relations of emotion to voluntary action. We have seen that reflex acts, similar to, or identical with those in which Professor James believes emotion to consist, may occur independently of emotion, in the ordinary acceptation of the term, at least. Strictly voluntary acts, on the contrary, are always the concomitants of emotion of some sort. In the great majority of the ordinary actions of life, they are the only motor phenomena of which we are aware in this connection. Our whole daily conduct, in our business and pleasure, our incomings and our outgoings, our downsittings and uprisings, is inseparably associated with our likings and dislikings, our hopes and fears. What is the nature of this association?

Under the theory we are considering, two relations of voluntary acts to emotion are possible. They may, like the involuntary reactions, constitute the emotion, or unlike them, result from it. Professor James does not express himself on the general question, but some of his illustrations seem to favor the former view. If the man who meets a bear is frightened because he runs, or the one who is insulted, angry because he strikes, the voluntary acts of running and striking must, in part, at least, constitute the emotions of fear and anger in these cases. Let us, then, consider this case first.

If I see a shower coming up, and run for a shelter, the emotion is evidently of the same kind, though perhaps less in degree, as in the case of the man who runs from the bear. According to Professor James, I am afraid of getting wet because I run. But supposing that, instead of running, I step into a shop and buy an umbrella. The emotion is still the same. I am afraid of getting wet. Consequently, so far as I can see, the fear, in this case, consists in buying the umbrella. Fear of hunger, in like manner, might consist in laying in a store of provisions; fear of poverty, in shoveling dirt at a dollar a day, and so on indefinitely. Anger, again, may be associated with many other actions than striking. Shylock's anger at Antonio's insults induced him to lend him money. Did the anger, or revengefulness, or whatever we may call the passion, consist in the act of lending the money? I hardly think it necessary to multiply instances in illustration of the fact that the same act is often associated with the most contradictory emotions, and acts which are ordinarily indifferent with the most intense feeling; that, in fact, there is no such uniformity in the associations of emotion with voluntary conduct as the hypothesis would seem to require. I incline to think that most people will believe, in the cases cited by Professor James, that the running and the striking are the results, not the causes of the fear and anger.

If we assume such to be the case, we are no better off under the hypothesis we are considering. Excluding voluntary movements, there is nothing left of the emotion, according to Professor James, but the consciousness of involuntary, reflex acts resulting from perception. The voluntary acts must, then, be directly caused by these. Now,

in the first place, it is often difficult, if not impossible, to tell what these actions are. What are the involuntary muscular contractions that impel a day-laborer to go to the place of his work, and keep his voluntary muscular system in strenuous activity all day, enduring fatigue and all the discomforts of the summer's heat or winter's cold? It would probably puzzle him very much to tell, although he has a very clear idea of why he does it. I doubt if, on his own hypothesis, Professor James himself would find it easy to explain the constituents of the emotions which impel him to go to the class-room at the appointed hour and conduct a recitation. But even in cases in which we are distinctly conscious of involuntary action, there seems to be no connection between it and the voluntary acts accompanying the emotion. In the case of the man running from the bear, for instance, trembling lips, weakened limbs, goose-flesh and visceral stirrings have nothing to do with running, but, on the contrary, would rather tend to prevent it. In fact, it may be said, in general, that the two classes of emotional activities are mutually antagonistic. The more involuntary the action, the less efficient the voluntary activity is apt to be, as any one knows who has had an attack of the "buck ague." We should have, therefore, diminution of the effect with increase of the cause.

It seems, then, on the hypothesis, impracticable to account for the association of voluntary action with emotion either on the supposition that the former is the cause or the result of the latter. A third alternative—that there is no relation of cause and effect in the case, and that the phenomena of emotion and action, although constantly associated, are really independent, I will not discuss, as it does not commend itself to my mind, and Professor James, elsewhere, expressly repudiates it. It seems to me that the only reasonable conclusion is that emotion is something different from either involuntary or voluntary muscular activity, and which may be the cause of either or both.

Professor James, after admitting that the view of the subject which he advocates is only a hypothesis, and that much is lacking to its definitive proof, goes on to say:

> 'The only way coercively to *dis*prove it, however, would be to take some emotion and then exhibit qualities of feeling in it which should be *demonstrably* additional to all those which could possibly be derived from the organs affected at the time. But to detect with certainty such purely spiritual qualities of feeling would obviously be a task beyond human power.....
>
> "A positive proof of the theory would, on the other hand, be given, if we could find a subject absolutely anæsthetic inside and out, but not paralytic, so that emotion-inspiring objects might evoke the usual bodily expressions from him, but who, on being consulted, should say that no subjective emotional affection was felt. Such a man would be like one who, because he eats, appears to bystanders to be hungry, but who afterwards confesses that he had no appetite at all." (P. 455.)

Whether the truth of the first of the above paragraphs is to be conceded or not, depends, I suppose, on the strength of proof necessary for coercion. The only way, for instance, coercively to disprove the once prevalent theory that "lunacy" is due

to the influence of the moon would be to abolish the moon. Most intelligent people, however, at the present day, accept the fact that there seems to be no coincidence between the moon's phases and the phenomena of insanity as sufficient proof for practical purposes of the incorrectness of that theory. It seems to me that the facts to which I have called attention show a somewhat similar lack of correspondence in the case we have been considering. I am, however, unable to see why a case of complete anæsthesia, such as is supposed in the second paragraph, would not answer nearly as well for one side of the question as the other, according to the presence or absence of emotion. To suppose that cutaneous and visceral sensations are preserved unimpaired for purposes of emotion, while absolutely abolished for all other purposes, would be putting a pretty severe strain on the faculty of belief.

Such cases, as Professor James says, are hard to find. He refers to one, reported by Strümpell, in which a boy, anæsthetic within and without, with the exception of one eye and one ear, was stated to have manifested shame, grief, surprise, fear, and anger. He goes on, however, to say: "In observing him, however, no such theory as the present one seems to have been thought of; and it always remains possible that, just as he satisfied his natural appetites and necessities in cold blood, with no inward feeling, so his emotional expressions may have been accompanied by a quite cold heart."

Since Professor James's work was published, two cases have been reported by Berkley,* which, although not, perhaps, conclusive, are of interest in this connection. In the first, the patient, a woman of English birth, age not stated, had complete loss of sense of pain, heat and cold, pressure and equilibrium, of smell, taste, and sight. The sense of touch, although not completely abolished, was very greatly impaired. She recognised a hat, for instance, only after feeling of it for a long time and then seemed doubtful about it. Her sense of the position of the extremities was also very imperfect, although not entirely abolished; and there was some deafness, although not enough to render her incapable of conversation. With regard to her mental state, Dr. Berkley says:

"The psychical condition has undergone but slight change, she is possibly a little apathetic, with some slight tendency towards a melancholic tone, but when aroused and induced to converse for some time, this in great measure passes away. The memory is quite good."

Dr. Berkley was kind enough to give me the following additional information about this patient, who, at the time of writing, was still under observation:

"'Since the coming on of the dullness in hearing there has been a considerable degree of apathy manifest. She is no longer conscious of the smaller noises that occur around her, but is very readily aroused by the voice, and then takes a lively

* *Two Cases of General Cutaneous and Sensory Anæsthesia, without Marked Psychical Implication.* By Henry J. Berkley, M. D., Baltimore. [Brain, Part IV. 1891.]

interest in what is said to her: for instance a few days ago the resident physician remarked to her that he was going to obtain a pair of crutches for her use; she laughed heartily at the idea, and said she would fall and break her leg at the first step."

In response to further inquiries, he writes as follows:

"1) Visceral sensations. The clearest evidence of visceral sensation I have noted in my article," [warning of the necessity of evacuating the bowels and bladder by a pricking pain in the lower part of the abdomen,] "no others were sufficiently definite to be described. For two years there has been no feeling of hunger or thirst, and as the diet has only been a few mouthfuls of milk at a time for nearly that period, there has been no feeling of repletion.

"2) When the patient laughs at a joke, there is a slight flushing of the face, besides the ordinary contraction of the facial muscles; she is aware that she is laughing, but besides acknowledging that she perceives no difference between the act now, and some years ago, she is unable to describe the sensation further.

"3) Anger. As I think I mentioned in my last letter, the patient has been a person of unusually equal temper; an outbreak of real passion has never been observed with her. When annoyed or teased by some of the other women, there is a distinct corrugation of the forehead, accompanied by an exceedingly slight general movement as if of aversion, no words, movement of the chest, clenching of the hands, etc. She describes the sensation as one of repulsion.

"Like Strümpell's case she shows definitely shame, grief, surprise, fear, and substituting for anger, repulsion.

"My own impression derived from observation of the patient is, that all mental emotional sensibilities are present and only a little less vivid than in the unanæsthetic state; and that emotions are approximately natural, and not at all coldly dispassionate."

In the second case, that of a Russian woman, aged thirty-five, there was complete loss of cutaneous sensibility in all its qualities: the sense of position ("muscular sense") was almost completely abolished; the sense of taste was absent in the anterior two-thirds of the tongue. Smell, sight, and hearing were preserved. She had left the hospital before the article was written. In regard to her case, Dr. Berkley writes:

"While in the most absolute state of anæsthesia (auditory and visual excepted) there was no departure from a normal psyche; the woman would sometimes be angered when she did not understand a question, at others would smile or shake her head, and would frequently laugh and talk with another Russian woman in the same ward. There was never the slightest apathy manifest after the first few days of febrile movement."

I give these cases for what they are worth. In the first, it is evidently impossible to entirely exclude the presence of sensations caused by the reflex acts, and the second, not having, apparently, been examined with special reference to the subjective side of her emotional manifestations, may be open to the same objection which Professor James makes against Strümpell's case. To me it seems extremely unlikely that, if the theory under discussion is correct, such an amount of anæsthe-

sia as existed in these cases would have produced no obvious effect on the emotions. The fact that voluntary acts were performed by both these patients as well as by Strümpell's case, seems to me conclusive as to the existence of emotions of some sort in all of them.

It seems clear to me, from the foregoing considerations, that there are serious difficulties in the way of accepting Professor James's theory as an adequate explanation of all the phenomena of emotion. On the other hand, I think it contains an important truth, and that, by calling attention to it, he has rendered a real service to psychology. In order to make it clear how far I agree with him, it will be necessary to consider just what feelings are to be classed together under the head of emotion.

If we touch our fingers to a live coal, we are conscious of a sensation of heat, and also of pain. If we take quinine into our mouths, it tastes bitter, and also disagreeable. So in regard to a very large proportion of our sensations, we recognise two elements—one which has to do with the qualities of the object, and another consisting of the pleasurable or painful way in which those qualities affect us. The former may be called the objective element in sensation. We think of the heat as residing in the coal, whether we are touching it or not, but it never occurs to us to think of the coal as in pain. The pain is in us—an entirely subjective feeling. Doubtless there is no more reason to think of heat, as it is appreciated by our senses, as a property of the coal, than pain, but that is the way in which we naturally think of it. That these two elements are really distinct is evident from the fact that the different senses furnish them in different proportions. Comparatively few sights, for instance, give any such sensuous pain to the eye as the sensation produced by getting a grain of sand under the lid, which gives us very little information in regard to the qualities of the offending substance. In fact, it is generally true that intensity of pleasurable or painful sensation is a hindrance to exact knowledge of its object. It is further evident from the fact that, in disease, one form of sensibility may be abolished while the other is retained. A person may be able to feel the slightest touch, and to recognise perfectly the size, shape, and texture of the objects he handles, and yet feel no pain when cut, struck, or burned, or he may have even heightened sensibility to painful impressions with loss of the power to recognise the sensible qualities of objects.

Now, although we are accustomed to distinguish between emotions and purely sensuous pleasures and pains, there are some points, at least, at which it is not easy to draw the line. My pleasure in the anticipation of a good dinner is undoubtedly an emotion. Is not my pleasure in eating it entitled to the same name, and does not the latter consist in the reality of the sensations which in the former case were enjoyed in imagination? Is not the enjoyment we feel in the smell of mignonette, the tone of a sweet voice, the color and form of the rainbow, emotion? Yet it consists largely, if not entirely, in the agreeableness of the sensations. Most people would probably think it strange to hear hunger and thirst spoken of as emotions

but would readily agree that desire of food or drink is as much an emotion as any other desire. Is the desire in this case anything more than the hunger or thirst?

I am inclined to think that it is proper to call such pleasures and pains as I have instanced above emotions, and if so, I see no reason for denying the name to any sensuous pleasures and pains. If Professor James's view is that all feeling is sensation, I should say that all feeling is emotion. Whether this view is correct or not, I do not see how Professor James can consistently refuse to accept it. On his theory, the emotions which he discusses must owe their pleasurable or painful quality to the pleasurable or painful nature of the sensations in which they consist. I can see no valid ground for saying that some such feelings are emotions and others are not. But the essence of emotion is pleasure or pain. Abstracting these qualities, it would be an indifferent emotion, which, I think all would agree, is a contradiction in terms. Possibly he might wish to limit the use of the term to those pleasurable and painful feelings, which arise not directly, but in a reflex way. He might say, for instance, that the disagreeableness to the ear of the creaking of an ungreased axle is not, but the shudder which it gives a sensitive person is, emotion. In that case, it must be admitted that a sneeze is emotion. His contention is that we have no other pleasures or pains than those of sensation. If this be true, a setting off of some sensations as emotions is, if not an arbitrary, a comparatively useless procedure.

My own view, then, is that the elements of sensation which I have spoken of as objective and subjective might, with equal propriety, be characterised respectively as intellectual and emotional, and that in this direction the theory under discussion, although true as far as it goes, does not go far enough.

However this may be, the admission or denial that these feelings are emotions does not necessarily affect the question whether or not this is the only origin of pleasure and pain. As has already been said, those feelings to which no one will deny the name of emotions are not usually, in adult human beings, at least, direct reactions on sensation. If it be true that the start we give at the unexpected slamming of a door is a sort of fright, it is a very rudimentary sort compared with that which one feels when the cry of fire is raised in a crowded theatre. "A burnt child dreads the fire." It is not the sight of the fire, but the thought of the burning, that arouses the emotion. When a man reads in the newspaper of the death of a friend, or a rise in the value of property in which he is interested, it is not the sight of the black marks on the white paper, but the beliefs which, through a long and intricate series of associations they call up, which move his feelings. If he could not read, he would see the same announcement without any emotion. The usual origin of the emotions *par excellence* is by way of association.

Suppose that I have taken a nauseous dose, and made a wry face over it. No one, I presume, would question that the disagreeableness lay in the unpleasant taste, and not in the distortion of the countenance. Now, suppose I have to repeat the dose, and my face takes on a similar expression at the anticipation to that which

it wore when I took it originally. How does this come about? If I can trust my own consciousness, it is because the vivid reproduction, in memory, of the unpleasant taste is itself unpleasant. I do not see how it can well be otherwise. Professor James says (p. 649) that "the first element of memory is the revival in the mind of an image or copy of the original event." How can I have a copy in my mind of a pain if it is not painful? Take away the painfulness of it and there would be nothing left. I might remember the circumstances under which it occurred, and judge from them that I must have suffered pain, but I could not, it seems to me, remember the pain itself. Whether that is possible or not, I feel sure that the fact, in my own case, is, that my memory of a pain resembles it in the same way that my memory of the circumstances in which it occurred resembles them. If this be the fact, what can be more natural than that it should excite the same sort of associated movements that were excited by the original sensation? I cannot make it seem any more credible, to return to the example mentioned above, that my repugnance to a repetition of the dose is due to my involuntary movements than that my discomfort in taking it originally was due to the similar movements that occurred then.

Suppose that a child who has eaten and enjoyed an orange is offered another. The sight of it calls up the recollection of the agreeable taste, and the expectation of a repetition of the pleasant experience excites expressions of pleasure. If the fruit is snatched away, the disappointment at the loss of the expected pleasure is distressing, and very probably may result in his weeping. I hardly think that any one who will consult his own consciousness will say that the reason he likes the taste of an orange is that it makes him laugh or smile to get it. He likes it because it tastes good, and is sorry to lose it for the same reason. The laughing or weeping is, I think, unquestionably the result of the pleasure or grief, not of the mere perception of an object in itself indifferent.

It is true that emotions of this sort do not always arise by way of personal association. Young children are apt to be afraid of strangers, of large animals, and of loud noises. I can remember being frightened at my first sight of a locomotive. Here we come upon the questions of inherited experience and natural selection, which can hardly be discussed in an article like this. The objects of which young children are instinctively afraid, as a rule, are either dangerous themselves, or more or less similar to dangerous objects. I see no more difficulty in supposing that mental pleasure and pain, on the sight of special objects, may be a matter of organisation than in the case of the analogous physical sensations.

My view of the matter, then, is that emotion in the sense in which the word is commonly used bears the same relation to perceptions or beliefs that feelings of physical pleasure or pain do to the objective or intellectual quality of sensations. I am inclined to think it proper to class all pleasurable and painful feelings together as emotions. If this view is correct, it would, of course, include those feelings to which Professor James would confine the term. I should not at all hesitate to admit that the emotional state of a person who trembles and turns pale with fear is

different from that of one who preserves his self-possession in the presence of a danger that he realises and dreads. I think it is true that the voluntary actions prompted by an emotion have some tendency to intensify it. But, so far as I can analyse my own feelings, the pleasures and pains of memory and imagination seem to me just as real as those of sensation, and not at all to be confounded with them. When I try to subtract all motor reactions and resulting sensations from the feeling of fear, for instance, there remains not merely the intellectual perception that the event dreaded is not desirable, but the perfectly distinct emotional consciousness that I do not desire it.

This view seems to be favored by the analogy between the relations of sensation to reflex movement on the one hand, and of perception to voluntary movement on the other, which will, I think, be found to be very complete. We have reflex acts which are useful, such as breathing, the beating of the heart, swallowing and coughing; and others, like groaning, weeping, and trembling, which seem to be useless. In like manner, emotions of hope or fear may give rise to voluntary acts calculated to enable the subject of the emotion to secure or avoid its object. If I burn my fingers, my hand is involuntarily snatched away. Such would not be the case if the burn caused no pain. If I see that the house is on fire, I try to escape, either by extinguishing the fire or by getting out of the house. It seems to me evident that I should not do so if the thought of being burned were not painful. Such emotions may also occasion useless acts, more or less similar to those mentioned above. A person who saw no way of escape from a burning house might tremble, weep, or groan from fear.

On the evolutionary hypothesis, it seems easy to understand how the reproduction, by memory or imagination, of certain feelings might bring about movements like those excited by the original feelings. Professor James would have us believe that this reproduction is always, in itself, indifferent, that is, merely intellectual; but that it is, nevertheless, capable of setting up the movements which, in the case of peripheral stimuli, are the results of pleasure and pain, and that the consciousness of these movements is, in such cases, the sole cause of the emotional condition. Such a reversal of relations seems to me highly improbable. Each one must decide for himself which view is more in accordance with the facts of his own consciousness.

W. L. Worcester.

PROFESSOR ERNST MACH'S TERM SENSATION.

SUPPLEMENTARY TO HIS CONTROVERSY WITH THE EDITOR.

The Monist, Vol. I, No. 3, contains a controversy between Prof. Ernst Mach and myself on some questions of psychophysics in which Professor Mach, having reference to an editorial article on "Feeling and Motion," regards sensations as the "elements of reality," "while motion," he says, "is a mere mental auxiliary, an

artificial expedient." "Physicists," we are told, "have accustomed us to regard the motions of atoms as more real than the green of trees. In the latter I see a (sensory) fact, in the former a *Gedankending*, a thing of thought."

In contradistinction to Professor Mach I maintained that our scientific terms, although abstract concepts and things of thought, or noumena, are after all descriptive of actual facts; they are symbols representing features of reality. Motions, i. e., that which is meant by the term motion, is a reality, and what the chemist calls atoms is a definite quality of certain facts of experience. Atoms are not things in themselves, as the name seems to suggest, but rather proportional relations conveniently so expressed as if they were ultimate units or concrete little bodies of a definite mass or weight. What atoms are, aside from representing the proportions in which elements combine, we do not know. We may define "atom" as the minimal weight in which an element enters into chemical combinations, but such atoms have never been an object of observation. For aught we know, they may as little be discrete bodies as a curve consists of discrete straight lines, which, as such, would be unobservable only because infinitesimally small. The infinitely small straight line into which a curve is analysed by mathematicians is a fiction, wisely devised for calculating the path of the curve. This fiction is as Professor Mach says, an artifice only, not a reality, or as I say, an allegoric expression to characterise not whole concrete realities, but certain features of reality in their abstractness.

Scientific terms are comparable to myths that contain deep religious truths. The fiction of the myth is only the vehicle of its meaning. The naked meaning in its abstract purity may be difficult to grasp. Thus our imagination steps in and completes the picture so as to render it concrete and easily thinkable.

Now, when several months ago I met Professor Mach at Prague, our conversation naturally touched upon the problems which had formed the subject of our discussion. Professor Mach assented to my speaking of scientific terms as abstracts. That, accordingly, must be considered as the point of agreement. But when I proposed that the term sensation also was according to my terminology an abstract term representing one feature of reality only and excluding other features, Professor Mach took exception to it, saying that he understands by sensation reality itself. Very well then, this is the difference; and this difference is after all a difference of terms only. I understand by sensation the psychical feature of the data of experience only, to the exclusion of what may be called its physical aspect. Sensation accordingly, as I use the term, is not the whole of the given reality but only one of its qualities. If, as Professor Mach uses the term, sensation is another name for reality, the main difference between our views appears to be removed.

P. CARUS.

BOOK REVIEWS.

VORLESUNGEN ÜBER DIE MENSCHEN- UND THIERSEELE. By *Wilhelm Wundt*. Zweite umgearbeitete Auflage. Hamburg and Leipsic: Leopold Voss. 1892.

The new edition of Wundt's *Menschen- und Thierseele* is one of the best existing general introductions to psychology. It preserves nearly the just mean between the purely introspective and abstract treatment and the substitution of physiology for psychology with which recent treatises have familiarised us. The author has completely rewritten the edition of 1863, which he regards as a youthful indiscretion *(Jugendsünde)*—retaining only such chapters as could be brought into harmony with his maturer views and with the developed science of psycho-physics that has taken the place of the *Zukunftsprogramm* of thirty years ago. He has wisely omitted all the superficial and diffuse chapters on comparative psychology and ethnology which cumbered the original work; has silently ignored the fantastic speculations as to the identity of electricity and nerve-force (one of the worst of the aforesaid youthful sins); and practically abandoned (perhaps as too esoteric for popular exposition) the elaborate reduction of sensations and perceptions to unconscious judgments and inferences.

The first thirteen or fourteen chapters offer a very clear and interesting résumé of the chief doctrines of the *Physiologische Psychologie* in regard to sensations generally, their measurements and qualities, Weber's and Fechner's laws, the special sensations of color, hearing, and the muscular sense, and the problem of space perception. Following the plan of the original work in these chapters, the author aims less at completeness of statement than to present clearly the distinctive doctrines of modern psychology. In the treatment of certain themes, e. g. Fechner's law, and the perception of space, he neglects, for the sake of clearness, qualifications of detail which the special student must look for in the larger work. The last sixteen chapters deal with the feelings, the will, consciousness, attention, association and apperception, conception, abnormal and animal psychology and instinct, concluding with two notable lectures on the "Freedom of the Will" and the "Immortality of the Soul." It is to these chapters that we must look for Wundt's general psychological and philosophical system. Profiting by recent criticisms he has here set forth his characteristic doctrines in so clear and definite a final statement that fur-

ther misconception of them is hardly permissible. The remainder of this notice will be devoted to what is perhaps the most interesting question thus suggested: Wundt's relation to the associationist psychology of Spencer on the one side, and to the younger German school of experimental psychologists on the other. Wundt ignores the Spencerian form of the associationist psychology, and the young psychologists do injustice to Wundt, neither side apparently condescending to read with attention the writings of the other. The debate, so far as it is not merely verbal, springs from two real differences of method: (1) Wundt in his psychological analysis habitually takes account of the problems of the theory of knowledge *(Erkenntnisstheorie)*, or ultimate metaphysics, which the young psychologists endeavor (not always with success) systematically to exclude. (2) Wundt, gifted with superior powers of introspection, is more aware than the young psychologists of the infinite complexity and subtlety of mental states. He prefers, therefore, to a schematic simplification of the phenomena a terminology and descriptive analysis that reflect in some measure their manifold diversity. And thus while Wundt finds the pure associationist psychology barren and tautologous, the young psychologists see in Wundt's complicated terminology only a shamfaced reversion to the discarded psychology of a substantial soul endowed with autonomous "faculties." But the analysis of our mental states which Wundt gives by means of this terminology is really only a subtler restatement of the analysis of Mill, Spencer, and Taine, to which the new psychology has not been able to add anything of moment. It is true that he proclaims the inadequacy of association, even when translated into the diagrams of a hypothetical cerebral anatomy, to "explain" fully our conscious active mental life. But in this he is at one with Spencer (ultimate scientific ideas), J. S. Mill (Examination of Hamilton), and Schopenhauer *(Epiphilosophie)*. It is gross injustice to stigmatise as an abandonment of the scientific attitude of mind this occasional passing recognition of the seeming ultimate inexplicability of things. In no single concrete instance can it be shown that Wundt now sacrifices the recognised methods and postulates of modern scientific investigation to the psychological hypostisations which his opponents detect in his terminology.

In confirmation of these statements I will give a brief summary of Wundt's doctrine of association and apperception with an occasional indication of its relation to the psychology of Spencer. Wundt distinguishes the totality of mental states which are perceived from the presentation at the focus of consciousness which is apperceived. In this way (substituting everywhere *dunkel bewusst* for *unbewusst*) he avoids the metaphysics of the unconscious, while getting the benefit of the entire analysis of its advocates. I do not think the ultimate difficulty can be evaded in this way, but will not stop to argue the point. A further advantage of this distinction is that it makes possible a dynamic treatment of mental states as "events" in place of the crude psychology that deals with the conditions of any mental state as so many ready-made parts externally dovetailed into the completed product. The active side of consciousness is taken into account from the outset. The mental state

at any moment is described by indicating the presentation which is then at the focus of consciousness (apperceived) and the accompanying faintly conscious presentations that qualify its tone and total effect. The given mental state is "explained" by tracing out the dynamic readjustments that brought this particular presentation to the focus, and grouped the faintly conscious presentations about it. Now the bringing of a presentation to the focus of conscious attention is the primitive psychical activity, the elementary act of will,* and since Wundt places this at the beginning he rejects all evolution of will or instinct from reflex action, and thus, it will be said, here at least puts himself in distinct opposition to advanced scientific thought Let us distinguish. So far as we are dealing with the developed minds we know, Wundt's distinction is merely the expression of an observed psychological fact. External volition does go back to internal voluntary attention and this to a focussing of consciousness for which apperception is as good a term as another. Such focussing of the attention is for us now the primary reaction of the "self" on its received impressions. Out of a given group of presentations I apperceive by preference one and you another, because at the time my "self," my mind, differs from yours. This self may be only a convenient short-hand expression for a passive product of external forces. The feeling of the reaction of the self may be an illusion, and its activity may be merely the mechanical action of a relatively coherent group of presentations when a new presentation is introduced among them, and the whole process may be explicable in terms of associations. But the feeling exists, and Wundt has described and analysed it better than any of his critics.

On the other hand, if the question is of the hypothetical origin of mind, we are at once brought face to face with an ultimate metaphysical problem which the new psychology impatiently ignores, which Spencer grudgingly acknowledges, but which Wundt and Kantians like Riehl find confronting them at every stage of their analysis. Conscious mind cannot conceive of its own origin, and therefore all psychological theories of development must postulate in some form the elements of consciousness and will. Nothing that I could add to the dialectics of this question would influence those who feel no difficulty here. They require a long course of Kantian criticism or its equivalent. At any rate it is not fair polemic to class a thinker as unscientific merely because he recognises this difficulty and gives it expression in his psychology, instead of contemptuously relegating it to metaphysics.

After thus laying the foundations in the doctrine of apperception for the psychology both of cognition and of the will, Wundt proceeds to restate the associationist analysis of Mill and Spencer in a more elaborate terminology but in substantial agreement with Spencer till he reaches the "concept," when the introduction of apperception gives rise to a seeming difference. Spencer distinguishes simultaneous from successive association as carefully as Wundt. What Wundt, after Herbart calls "complications," namely the joint reference to one object of a num-

* Cf. Ward, *Encyclopædia Britannica*, Vol. XX, p. 44.

ber of disparate presentations of sense, is clearly described by Spencer ("Principles of Psychology," §§ 315–355); and Wundt's "assimilations" do not differ appreciably from Spencer's "still less conscious" processes of "organic classification" ("Principles of Psychology," § 320). Into the metaphysics of the ultimate relations of contiguity and similarity as laws of association I cannot enter here. Similarity will always be recognised as ultimate by those who, like Spencer, approach the problem first from the psychical side, while a purely materialistic treatment in terms of nervous currents, such as we find in James, will endeavor to do away altogether with similarity, which simply cannot be expressed in terms of nerve-structure without reasoning in a circle. Wundt retains similarity but endeavors to coördinate it with contiguity. The problem is really identical with the final question of the relations of "mind" and "body," and cannot be profitably discussed apart from that question.

Coming now to the concept and the judgment, we find Wundt affirming that the different forms of simultaneous and successive association (as he has defined them) are not an exhaustive classification of mental processes—that they do not include the concept. Well, he is at liberty to define his own terms, and before we accuse him of hypostasising a new faculty to account for the concept, let us scrutinise his meaning. We shall find that he merely repeats, in a subtler terminology of his own, the analysis of Berkeley, Mill, Taine, Spencer, and Romanes. These writers treat the concept as a complicated associational group held together by the word. Now Wundt, while conceding the theoretic admissibility of this form of statement, holds that such groups present so many distinct characteristics that all delicacy of psychological discrimination is sacrificed by confounding them under one denomination with other associational complexes. He does not, like Professor James, bid introspective psychology "throw up the sponge" here, but wishes to carry his analysis into recesses which the instruments of the associationists are too clumsy to explore. In the interests of this analysis he limits the term association to combinations mediated by a limited number of elements. The (apperceived) concept, on the other hand, is the product of the reaction of the total mind. This distinction (whatever we may think of its absolute validity) expresses a finely observed psychological truth. The distinctive quality of a concept consists, Wundt says, "*in dem begleitenden Bewusstsein, dass die einzelne Vorstellung einen bloss stellvertretenden Werth besitze.*" This feeling he calls the *Begriffsgefühl*, meaning thereby exactly what Professor James means when he says that "the thoughts by which we know that we mean the same thing are apt to be very different indeed from each other," and that "a polyp would be a conceptual thinker if a feeling of 'Hollo! thingumbob again!' ever flitted through its mind." Only, instead of "throwing up the sponge," Wundt goes on to give a very interesting account of this feeling in its various degrees of clearness between the conceptual polyp and the conceiving man. Apperception is invoked only to name and emphasise the feeling of activity of the self that enters into the *Begriffsgefühl*, distinguishing it as a reaction of the total consciousness

from the relatively passive associations of what Romanes would call "recepts." Psychologists, however, will continue their fruitless debates on questions of terminology, and will still imagine that Wundt is a belated reactionist. PAUL SHOREY.

BEITRÄGE ZUR EXPERIMENTELLEN PSYCHOLOGIE. By *Hugo Münsterberg*. Heft 4. Freiburg i. B. 1892.

Münsterberg's fourth *Heft* begins with studies in association. If *a* and *b* have been independently associated with *m*, can *a* call up *b* without the appearance in consciousness of *m*? The affirmative answer of common experience was confirmed by Scripture's experiments. Associating five Japanese symbols with two series of five German words, he found that a word of one series tended (without conscious recollection of the Japanese symbol) to revive the particular word in the other series that had been associated with the same symbol. Münsterberg, after repeating and varying the experiment in a number of fields, denies that any such relation can be observed. He may very well be right on the question of facts. It is *a priori* improbable that a transitory and arbitrary association of a meaningless symbol could modify appreciably the independent and accidental associative attractions of familiar words and presentations. The philosophic interpretation is another question. For our real knowledge it is a matter of indifference whether we fill out "missing links" with "*dunkel bewusst*," "*unbewusst*," or "cerebral processes that have no psychical correlates." And yet how much of contemporary psychologising is a logomachy raging around just this question.

Münsterberg's second series of experiments show clearly the part played by such missing links in perception. A word is called out just before a complicated picture is exhibited to the subject. He will usually perceive first in the picture some object naturally associated with the word, even though the word has aroused no conscious associations.

Similarly (III) a hastily seen misprinted word will be interpreted variously according to the associations of another word called out to the subject in advance.

Another series of experiments has for result that even the most commonly associated word-couples, as table and chair, have no fixed, unconditional associative attraction for each other in the same or in different minds, but that the unit of attraction is the "associative constellation." This is only common sense, and artificial experiments will never reveal anything in this field that we cannot learn quite as well in the class room. "Table" will suggest "logarithm" if the boy is fresh from the class in trigonometry.

"The difference between men is in their principle of association" said Emerson long ago. Münsterberg, who has in his archives records of fifty thousand experiments in verbal associations, presents a table of the comparative frequency with which substantives are associated with superior (more general) or inferior class names, with adjectives or with verbs to which they stand in the relation of subject or of object. His chief result is that minds which associate a noun with its higher

class name *(Ueberordner)* think of it as the subject of a verb and do not associate it with an adjective. The *Unterordner* thinks of the noun as object of a verb and associates it with an adjective. The adjective, then, is not the higher class to which the substantive belongs, but a limitation of the substantive. The French, if they please, may use this conclusion to refute Spencer's contention that "white horse" is a more natural order than *cheval blanc.*

The first topic in "memory studies" is the persistence in the psycho-physical mechanism of the disposition to an acquired automatic movement, even after the memory of the nerve has been seemingly displaced by the habit of its contrary. The experiments were trivial, such as shifting the position of an inkstand from right to left in alternate months, or wearing a watch alternately in the right or left fob. The result, a progressive diminution of the mistakes made after every change, may plausibly be explained by the stimulated attention and consequent care of the experimenter. The second topic treats of the effect of a time interval on the exactness of our memory of sensations of movement in eyes and limbs. The section on "chain reactions" is a methodological study of the various applications of this experimental method. "The influence of nervous stimulants on psychic activities" is rather interesting reading, but yields no important results. Alcohol depresses, tea and coffee heighten the powers of memory and perception for an hour or two after absorption. But the harmful effect of the alcohol sometimes passes away after the first hour. *Grössenschätzung* is a study of our estimates of distances on a surface, made by passing the hand over it at arm's length, at half arm's length, etc. From experiments as to the estimate of absolute tone-distances (as distinguished from musical intervals) Münsterberg concludes that pure measurements are not possible with three tones only. Experiments with four tones do not, he says, confirm the law that distances corresponding to equal differences of vibration are felt as equal.

Physiologists have assumed that the symmetrical movement of the limbs as in swimming or rowing is the natural one; and the alternating or independent movements, as in walking or writing, are an acquisition involving inhibitions of the natural innervations. "Even in adult life," says Professor James, "there is an instinctive tendency to revert to the bilateral movements of childhood." Professor Münsterberg was led to doubt this view by observing the unsymmetrical motions of a baby in a warm bath, and experiment has confirmed his scepticism. Complicated joint motions of both hands (tracing circles or other geometrical figures on a surface) do not exhibit any tendency, when the attention is distracted, to assume the symmetrical form. They rather tend to compensate each other in such a way as to preserve equilibrium with the minimum strain on the other muscles of the body, and this law leads as often to alternating as to symmetrical movements of the arms or legs. The case is different of course with the muscles of the trunk, and may be different in birds, as it would in us if we spent our lives in swimming or rowing.

A new method of attacking the problem of localisation is to observe the effect of altering the circulation in different parts of the brain. Tentative experiments on

one subject seem to show that verbal associations are readiest when the victim lies on his left side, which is a happy coincidence with the localisation of the speech centres in the left frontal convolutions. If these statistics can be trusted, it is inadvisable to undertake hard mental labor with the head hanging back over the edge of a chair!

In the last chapter, certain simple experiments in our estimates of voluntary movements in varying conditions of mind and body are made the basis of a far-reaching theory of pleasure, pain, and judgment, the elements of which can be found in Aristotle, Herbert Spencer, and James. Münsterberg found by repeated experiments that the accuracy of attempted reproduction of a fixed and familiar amount of centripetal or centrifugal movement of finger and thumb along a rod perpendicular to his waistcoat varied with his condition of fatigue, pleasure, or pain. In a pleasurable state of consciousness the centrifugal movement was exaggerated while the centripetal fell short. In pain the reverse relation obtained. Hence he infers a connection between pain and muscular flexion and pleasure and muscular extension, or rather, he distinguishes the mere sensation of pain *(Schmerz)* and pleasure *(Lust)* which may depend on integrations and disintegrations in the nerve-tissue, from the accompanying feelings of agreeableness *(Wollust)* or disagreeableness *(Unlust)* which are due to sensations aroused at the centres by movements of flexion and extension throughout the body. He thus attaches his special theory of pleasure and pain to Lange's and James's theory of the identity of the emotions with their bodily concomitants—though he protests against the metaphysical implications of the doctrine. The origin of the existing coördination of muscular flexions and extensions with pleasure and pain, he explains teleologically on the principles of the Spencerian psychology of evolution. He then proceeds, after Sigwart and Brentano, to revive the old idea of Aristotle (whom he does not mention) that the judgment (affirmative or negative) is rather the assumption of an attitude toward a presentation *(Stellungsnehmende Akte)* than a mere conjunction of presentations. The affirmative judgment is a faint incipient represented movement of the self towards a suggested conjunction of presentations. The negative judgment is a similar movement in the opposite direction. Ontogenetically these inchoate movements are later than the movements of acceptance or rejection called forth by a painful or pleasurable stimulus, and must therefore be treated as derivative phenomena. But the Kantians may derive some comfort from Münsterberg's final assurance that he too believes that "*Erkenntnisstheoretisch das Urtheil primär ist.*" PAUL SHOREY.

THE SPIRIT OF MODERN PHILOSOPHY. By *Josiah Royce*, Ph. D. Boston and New York: Houghton, Mifflin & Co.

We are told by Professor Royce in the preface to this book, that we are indebted for it to the lady friend to whom it is gracefully dedicated, who asked him "for some account of the more significant spiritual possessions of a few prominent modern thinkers," to be related "in comparatively brief and untechnical fashion."

The larger portion of the work is taken up with that subject, exhibiting the general growth of modern philosophical thought beginning with Spinozism, and terminating with Monism as the outcome of the doctrine of Evolution. The author's purpose is constructive, however, as well as expository. He has his own philosophical creed, suggested by what he knows of the progress and outcome of modern thought, and the second portion of the work is the expression of his thoughts on the world-conception which he regards as embodying the true spirit of modern philosophy. Professor Royce justly lays stress on the fact that the theory of evolution is the product of a genuine and continuous growth. He dwells particularly, moreover, on the distinction between the *epistemological* sense of idealism, which "involves a theory of the nature of our human knowledge," and its *metaphysical* sense, in which it is "a theory as to the nature of the real world, however we may come to know that nature." It is in accord with the latter sense that Fichte, Schelling, Hegel, and their allies, as believing matter to be an expression of the world-spirit, are referred to as the idealistic school; and it is in the metaphysical and not the epistemological sense that the term idealism has been used since Hegel. The opposite of a metaphysical idealist is "one who maintains the ultimate existence of wholly un-"spiritual realities at the basis of experience and as the genuine truth of the "world—such unspiritual realities for instance as an absolute 'Unknowable,' or, "again, as what Hobbes meant by 'Body.'" This is not, however, the view of the author, who thinks that the metaphysical idealist alone is in possession of a successful solution for the epistemological problem.

Professor Royce divides modern philosophy into three great periods, of which the first was one of pure and simple naturalism. The supernatural had then only a secondary interest, and thought was governed by three ideas—"that nature is a "mechanism, that human reason is competent to grasp the truth of nature, and "that, since nature's truth is essentially mathematical, geometry is the model science, "whose precision and necessity philosophy, too, must imitate." During the second period of modern philosophy there was a gradual change of thought objectivity. Reason was still the instrument, but it was employed on the mind itself. It came to be recognised that if man is part of nature's mechanism, he is a knowing mechanism. The age was, however, more than one of self-analysis. Rousseau introduced a sentimental tendency from which came "a revival of passion, of poetry, and of enthusiasm, whose influence we shall never outgrow." To it is traceable the French Revolution which overthrew all the mechanical restraints of civilisation, and "demonstrated afresh to the world's outer sense the central importance of passion in the whole life of humanity."

The period of modern philosophy, which still continues, began with the publication of Kant's "Critique of Pure Reason," the essential doctrine of which is that man's nature is the real creator of man's world, that visible nature is the expression of the human spirit, the inner structure of which is therefore the deepest truth for us. This idea is "as old as deeper spiritual faith itself," and yet it is the very

soul of all our modern life because it is "the essentially humane view of reality." For fifty years Kant's ideas ruled philosophic thought, and then, through the progress of science, the doctrine of evolution received formulation and confirmation and "external nature has once more gained for us an imposing authority which makes us in many ways sympathise afresh with the pure naturalism of the seventeenth century." We are compelled to omit any account of the author's study of the philosophies of Spinoza, Locke, and Berkeley, or the philosophic systems of Kant and his successors of the German School of Idealists. Nor can we say anything as to the doctrine of Evolution, which Professor Royce rightly regards as having had its rise long before Darwin or Herbert Spencer. Before proceeding to state his own views, the author takes a cursory glance at modern empirical monism which he affirms to be rather a suggestion than a philosophy. It is not surprising, therefore, that he is not content with it although he makes use of its ideas.

Let us now see what are the "Suggestions" which Professor Royce offers as his contribution towards the formation of a world-conception. These occupy the last four chapters of the work, which are supplemented by a general summary in the appendix to the book. For the sake of conciseness we will make use of this summary, according to which there are two phases of idealistic doctrine, the Analytic Idealism of Berkeley and the Synthetic Idealism of Kant and his successors. The former shows that if the world is to be knowable at all, it must be, in its deepest nature, a world of ideas, that is, it exists "only in so far as beings with minds actually *know it to be*." The objection that nobody can *know* any reality beyond his own self, is met by the synthetic phase of idealism which shows us that "there is but one self in the world, the logos or world-mind. The *finite* self knows truth beyond its own limitations, just because it is an organic part of the complete Self." What are the demands of idealism as thus stated? They have relation, first, to the interpretation of the facts of experience, which must be in terms of the doctrine of the world-mind, and, secondly, to experience itself, on which we depend "for the revelation of that truth which, for us finite beings, must remain a fast 'outer' truth, just because it is the content of other mind than our own bits of selfhood, and is universally true for all intelligences." The philosophy of experience having to do with facts and with the interpretation of facts, it is necessary to distinguish between what is really "outer" and what is "inner" about our finite experience. The former embraces the world of facts, and a fact is something which must be describable in some sort of universal terms. The principle of ordinary realism, "that you must not be sentimental or otherwise emotional in your account of the truth of things, but rather *exact in your descriptions of what things are*," has a thoroughly idealistic justification. Not appreciation, but description gives us outer truth, and this is the characteristic presupposition of all natural science, which is concerned with the universal aspects of things, as opposed to momentary and transient aspects. That presupposition involves the assumption that the world is *essentially describable*. But as only the well-knit, the orderly, that which conforms to law, can be described

science assumes the universality and rigidity of the laws of nature. It assumes further, since the most exact descriptions are possible only in the case of processes in Space and Time, of a mechanical type, that everything including man himself, is a part of nature's mechanism. A closer analysis, however, shows that, as one can only describe what has been first appreciated, there must be universal types of appreciation, and therefore, that "Ideals must be deeper than Mechanism, so that, in order to be relatively describable, nature must embody purposes, and so be possessed of worth." The author's conclusion is that the natural order is also a moral order, and that therefore "the world of absolute self must appear to us as having "two aspects, one a temporal, the other an eternal aspect, one of law and one of "worth. Man then turns out to be at once a part of nature's mechanism, and a "part of the moral order; at once temporally determined and morally free."

The final lecture presents the author's views as to the solution of the problem of evil. Professor Royce believes that all evil is part of a good order, and hence he agrees with Hegel, who declared that life, however good, will always be restless, longing, suffering, and who gloried in the paradox as the very essence of spirituality; rather than with Schopenhauer, whose recognition, in another light, of the universality of the same truth led him to abandon all hope in life. The justification of the existence of an evil impulse comes just at the instant when it is hated and condemned. Thus "condemning and conquering the evil will, makes it part of a good will"; as pain and suffering have their compensation in their chastening effect on the spirit. But to the enlightened soul it is not so much the painfulness as "the blind irrationality of fortune that seems to drive God out of our thoughts when we look at our world." It is the capriciousness of life, arising from human stupidity, that really makes it seem like an evil dream. What is the explanation of this caprice given by the author? It is to be found in the creed of his idealism, "This world is the world of the Logos." It is "the suffering God, who is just our own true self, who actually and in our flesh bears the sins of the world, and whose natural body is pierced by the capricious wounds that hateful fools inflict upon him." And as our defeats are his, so his triumph and his eternal peace are ours also.

Prof. Royce in making "only one more effort to define a 'double-aspect' theory of the relations of the physical and the moral and æsthetic worlds," affirms that our philosophic insight teaches us that the world of matter in motion is simply an external aspect of the appreciable world, that is, of the world of the Logos. Of this, it is such an aspect "as can be expressed by finite consciousness in terms of the space and time forms, and of the categories of empirical science. . . . Consequently all its laws, all its necessity, its causation, its uniformity, belong, not to its inner nature as such, but to the external show of this nature." That which actually appears to us is matter in motion, which furnishes the fact of the double aspect, the inner intelligibility of which fact is problematical to us, but not so for the Logos, who is our true Self, and who "completes the insight that for us is so fragmentary." This true Self, the Logos, is the only Self, and with it the deeper

self of man is identical. That this deeper self is "the self that knows in unity all truth," is declared to be no hypothesis, and therefore the existence of the Infinite Self is perfectly sure. This Self "infinitely and reflectively transcends our consciousness, and therefore, since it includes us, it is at the very least a person, and more definitely conscious than we are; for what it possesses is self-reflecting knowledge." Finally, the true world, that is the world of appreciation, is the system of the thoughts of the Logos, whose unity we know just so far as we ourselves consciously and rationally enter into it and form part of it. Therefore "in so far as we have inner unity of thinking, in so far as we commune with our fellows, and in so far as we rightly see significance in the outer universe, we are in and of the world of appreciation that embodies the thought of the Logos."

Ingenious as this theory is, and notwithstanding the elements of truth it possesses, we cannot accept it as conclusive. Its weakness is revealed in the last line of the paragraph just quoted. If only the world of appreciation embodies the thought of the Logos, what becomes of the world of fact? The latter is said to be the outer aspect of the former, a notion which is apparently derived from the association with man of body and mind. But the existence of mind, which we must understand by the term Logos, in nature, although declared by Professor Royce to be the only thing certain, is a mere inference, and even if the analogy of the human organism justifies such an inference; it would require that if priority has to be given to mind or matter in the universe it must be allowed to the latter. At birth a human being has no mind, properly so-called, since it is the result of the activity after birth of the organism, through the agency of the brain. It is true that the human body possesses from the first the elements of the mind, or rather of the feeling which thus exhibits itself; or, better still, the organic structure of which feeling is the general function. The utmost that can be properly asserted of the universe, therefore, is that it possesses a certain organic arrangement of its parts, and therewith such a condition of feeling, or, what in this relation would be a better term, sensitiveness, as is required by its organic character. In relation to such a state of things the terms thought, consciousness, reflection, have no meaning so far as we can judge. That organic aspect of the universe, moreover, leaves no room for duality. Just as the human organism constitutes a perfect unity, although it is made up of various organs and exhibits the properties attributed to both mind and matter, so must the universe be such a perfect unity whatever its nature and attributes. The human organism may, however, be strictly described as matter under organic conditions, a description which is equally applicable to the universe, without determining what those conditions are. Professor Royce objects to the Unknowable of Herbert Spencer, but there is very little practical difference between it and his own true Self, which, as the Absolute, is unknowable, although he is known in the inner self of man, as Spencer's Unknowable is known in the human consciousness. Both Absolute and Unknowable are, however, merely names for Organic Nature, which is seen in all things visible and is known by all her operations.

These are governed by the laws of her very existence, and it is the uniformity of which those laws are the expression which constitutes the moral law of the universe, the breach of whose eternal order, whether this is established in the world of matter or in the human mind, must be attended with consequences that are designated by man as evil. We find only a world of description, which is nevertheless one of moral order.

Widely as we disagree on the grounds stated with the conclusions of Professor Royce's work, it is undoubtedly a valuable contribution to the discussion of the world-problem. Its description of the characteristics of the philosophy of Kant and of the German idealists is clear, though not intended to do more than exhibit the spirit of their teaching, and it is written in a style which renders it easy reading. It is a pity, therefore, that it is disfigured with such colloquialisms as *you'll*, *isn't*, *can't*, *don't*, words which neither sound well, nor look well in print. Ω.

Die Aristotelische Auffassung vom Verhältnisse Gottes zur Welt und zum Menschen. By *Dr. Eugen Rolfes*. Berlin: Mayer & Müller. 1892.

This book is a scholastic "survival." The author believes that Zeller's interpretation of Aristotle is wrong, and in five formal theses he endeavors to prove *secundum artem* that the philosopher was a theist who taught the creation of the world from nothing, and the immortality of the soul. In the defence of his theses he manifests some ingenuity and industry, but no criticism. The work has no scientific significance. P. S.

Max Stirner und Friedrich Nietzsche. Erscheinungen des modernen Geistes und das Wesen des Menschen. By *Robert Schellwien*. Leipsic: C. E. M. Pfeffer, 1892. Price 2 m 60 pf.

Individualism is the spirit of the age, and among all the champions of individualism the most original, the most consistent, the boldest, are perhaps Max Stirner and Friedrich Nietzsche. Robert Schellwien, in sketching their views in great outlines, partly admires these courageous thinkers who dare to draw the consequences of their principles to the very last even though they will appear absurd to the world, partly censures the rashness with which they arrive at, and the superciliousness with which they sometimes state, their opinions. Upon the whole the author succeeds in impressing the reader that there is in these two peculiar geni uses a gigantic strength, and that their views of truth, morality, and justice deserve a greater attention than they have received. The reviewer is no admirer of either Stirner or Nietzsche; he believes nevertheless that a careful analysis of their erratic minds and lives will be very instructive. It will be first of pathological and then even of more than pathological interest. The actual objective value of the ideals truth, morality, and justice, will be best illustrated by showing all the consequences of a consistent individualism. We hope that this pamphlet will grow into a more comprehensive work; and in that case we should advise the author to add short biographies of his heroes. Κρς.

THE SOURCES AND DEVELOPMENT OF KANT'S TELEOLOGY. By *James Hayden Tufts*. Chicago: University Press. 1892.

This little tract is an inaugural dissertation presented by Mr. Tufts to the University of Freiburg for the attainment of the doctorate of philosophy. It is written in English. Mr. Tuft's dissertation is wholly historical. He simply seeks to expound Kant's true views. In this respect the work bears the marks of much research and of a thorough exploitation of Kant's works. Mr. Tuft's concluding words are that "with every new discovery of science, every advance in the ideals of art and of the conduct of life, every development in religious faiths, comes anew the task for philosophy to criticise, and through criticism to make a fresh attempt to interpret from the unity of reason the manifold of life." μκρκ.

DISTINCTION AND THE CRITICISM OF BELIEFS. By *Alfred Sidgwick*. London: Longmans, Green, & Co. 1892.

This work might be described as an inquiry into the conflict between philosophy and common sense, and its central idea as the continuity of nature. What bearing this idea has on the inquiry is shown by the statement, that the distinction between philosophy and common sense is only one of degree. And yet, regarded as methods, or attempts to follow ideals, they may be sharply contrasted. This implies the existence of distinctions, and hence arises the question how far distinction is consistent with continuity in nature. The recognition of such a continuity requires the admission of the unreality of distinctness, but this fact is not inconsistent with the use of rough distinctions, which give rise to what the author terms effective ambiguity. Here we have the field of the operation of common sense, which exhibits itself as tact in the use of rough distinctions, while, on the other hand, philosophy may be said to be concerned with the continuity which, from a superficial glance, might be supposed to stand in opposition to distinction.

The ultimate result which Mr. Sidgwick has in view is the reconciliation of philosophy and common sense, although it is incidental to his main purpose, which is the discussion of the best way of dealing with ambiguity, that is, of using rough distinctions. The improvement suggested is the substitution of "reasoned discrimination" for "haphazard tact," and it is based on the doctrine that "the validity of all distinctions is relative to the purpose for which they are used at the time." This cannot mean that distinction is merely relative, as it is said that there is no distinction which is quite safe against being broken down. The implication is that a safe distinction is possible, although difficult to find, and consistently with that view, the doctrine has the double aim of repressing excessive belief in distinctions which are, at least for the moment, invalid, and, on the other hand, of "enabling us to justify for a passing purpose, distinctions which are faulty on the whole." The justification here arises from the use, and not from the distinctions themselves, although it is evident there must be some basis for them, or they would be invalid. The element of truth is derived from the continuity of nature, with which philosophy is

concerned, and hence the improvement in the method of common sense is to be effected through its regulation by the method of philosophy.

The justice of this view may be tested by its consequences, which are stated by the author in reviewing the chief incidental aims of his book, as being those which have to do with controversy, the faults of language, and the conflict between the rival ideals, faith and doubt. "Philosophy," we are told, "is doubt, just as science is knowledge," (a description which like many other things in this book we cannot endorse,) and the true centre of philosophical interest in regard to rival ideals is "to harmonise the dispute by seeking how to limit each ideal by its opposite." This is the aim of all real philosophy, which recognises that every ideal has an element of truth. Philosophy is thus explanation, and Mr. Sidgwick avers one of the great dividing forces in philosophy has always been "the rivalry between two opposite methods of general explanation—that which explains small things by great ones, the part by the whole, the many by the one (e. g. all earthly facts as related to their one cause and substance); and that which explains great things by small ones, the whole by its parts, the one by the many (e. g. the system of nature as a 'concouse of atoms')." Thus regarded, the distinction between philosophy and common sense is simply one of method; and it may be said to consist in the use by the former of rational doubt based on scientific knowledge, as distinguished from the belief founded on popular wisdom which distinguishes the latter. Both alike, however, are the fruit of observation, pushed further, nevertheless, in the one case than in the other, which is practically the view expressed by the author.

In considering the nature of philosophy, we have given the gist of Mr. Sidgwick's reflections on controversy, which is treated as the opposition of ideals. This conflict is kept alive chiefly by doubt as to how abstract notions should be applied in concrete cases, and largely owing to "the absence of that kind of sharp distinction which is applicable, not only to the notions themselves, but to the actual facts to which they pretend to refer." This view is ably enforced, as well as the necessity of applying to the conflict between ideals the rule laid down as to the purposive validity of distinctions. The operation of this rule would be attended with concession instead of assumption, there being, however, the admission, which is equivalent to an assumption, that neither side of any ideal dispute is devoid of some truth as as well as some error. This is really required, if not by the continuity of nature, yet by continuity in our interpretation of nature. This is continuity in thought, and hence arises the difficulties connected with language which it is one of the author's incidental aims to point out. He supposes that language acts as a drag on the progress of knowledge, owing to the *clumsiness* of words arising from the fact that "things spoken of are always more full of change and movement than the words we can use in speaking of them."

Mr. Sidgwick insists upon continuity, yet change itself may be evidence of at least partial discontinuity. Our author remarks, in an appendix note on the continuity of nature, that every change, as such, is a *saltus*, however small it may be,

and that the same is true of any gap between the two extremes of nature and the intermediate region. That such an intermediate region exists, is required by the continuity of nature, which again is evidence of change, on the principle that every chain is made up of a series of links. But as in the chain there is no real gap between the links, so there is no actual discontinuity consequent on change in nature. The two extremes may be regarded as prolongations of the intermediate region, and the changes to which such prolongation is due may so occur that there may be discontinuity between certain parts, as between the fibres of which a hempen rope is made, and yet there be a perfectly continuous whole. We have an example of such a discontinuous *continuum* in a beam of ordinary light, which presents not the slightest gap, and which yet is made up of numberless undulations in different ratios representing the six spectrum colors, each of which is, moreover, spread throughout the whole of the beam. Here we see that continuity is quite consistent with distinction. The latter may be regarded as discrimination of the various phases of the former, and the distinction remains valid or otherwise according to the accuracy of the discrimination or not. But constant change of distinction is required by progress in knowledge which may be regarded as a thought representation, by discontinuous steps, of the continuity of nature.

As to the conflict between faith and doubt, the author considers the function of scepticism as the search for grounds of belief, and thus doubt is said to be "rather a friend than an enemy to those who remember that there is still some truth, on any subject, for fallible men to learn," as well as to those who are more interested in the discovery of truth than in supporting their own beliefs. Ω.

VORLESUNGEN ÜBER GEOMETRIE, unter besonderer Benutzung der Vorträge von Alfred Clebsch. By *Dr. Ferdinand Lindemann*. Leipsic: B. G. Teubner. 1891.

This first part of the second volume of Alfred Clebsch's Lectures has been arranged and treated by Professor Lindemann in the same way as the first, except perhaps that the editor has extended his independent investigations rather further than before, owing mainly to the fact that he had in addition to his own notes when attending Professor Clebsch's lectures in 1871–1872, only five folio pages of the late master's manuscript at his disposal. The present volume is divided into three parts. I. The Point, Plane, and Straight Line. II. Surfaces of the Second Order and of the Second Class. III. Fundamental Conceptions of Projective and Metrical Geometry. Historical notices and references are added in foot-notes. Considering the prominence of the editor as a mathematician, it would be a presumption on our part to praise his work. κρς.

AN INTRODUCTION TO GENERAL LOGIC. By *E. E. Constance Jones*. London: Longmans, Green, & Co. 1892.

This work is another witness of the great interest now being taken in all that pertains to the methods of knowledge.

Miss Jones, the author, is lecturer on logic at Girton College, Cambridge. During an experience of several years in teaching, certain difficulties have very forcibly pressed themselves upon her attention. She hopes by her book to aid in removing these difficulties.

It is certainly a good augury for women when their intellectual representatives begin to show the disposition to turn towards the "dry light." Logic and mathematics are "dry" to be sure; that is, they are very apt to be *found* dry, very dry, by beginners, and always by those who lack that real intellectual robustness which is alone fit to meddle with fundamental problems. Hence these sober and severe disciplines find little favor among those who seek merely for "showy" attainments, those to whom whatever is "uninteresting" is intolerable, and those who regard obscurity as inseparable from profundity. When then we find scholarly women manifesting a real relish for this "dry light," it gives promise of a coming day when the intellectual appetite will rise above the level of mere entertainment, the level of the play-house and the circus, and take kindly, and perhaps zealously, to real edification.

Miss Jones makes but very modest claims on behalf of her treatise. She has not undertaken to innovate to any great extent upon the regular scheme. If in her changes there is that which might especially provoke criticism, it is perhaps in the nomenclature which she adopts. The traditional logic forms a system which has its own proper merits and defects. It is of great historical interest, and its regular terminology is almost indispensable for the proper illustration of its doctrines.

We think also that the author fails to state the case in all its amplitude, when, she lays it down as one of the most absolute and ultimate of all logical principles that the self-evident ought to be believed. The truth is, as we conceive it, that the self-evident is sure to be believed, and that in the face of any proposition that truly bears its own justification along with it, any doctrine of logic is either useless or impertinent. ρσλ.

HYPNOTISMUS UND SUGGESTION. By *W. Wundt*. Leipsic: Wilhelm Engelmann. 1892.

A Greek student translates κλεινός 'small'; "You are thinking of the German *klein*," says the teacher quickly. Another renders ἡμεῖς γὰρ ἀγνοί, 'we are lambs,' misled by a chance cross association with the Latin *agni*. Every careful self-observer knows that there is no combination of memories, images, and resultant incipient acts too absurd for some moments of confusion and mental fatigue. We account for such confusions of thought by citing parallel cases and adding generally that normal associations are liable to disintegration and abnormal recombination in fatigued or excited conditions of the brain. If we seek a causal scientific explanation, two methods are open to us: (1) we may attempt to map out in detail and describe for all similar cases the pathways of association, or (2) we may endeavor to define their physiolcgical conditions and accompaniments in the nervous system.

The first leads us at once into the metaphysics of the unconscious. The second method, when we attempt to pass from a general to a specific correspondence, leads to a hypothetical restatement of the observed psychological facts in terms of the latest cerebral anatomy and physiology. Now all serious scientific thinkers are fast coming to the conclusion (on which Wundt's book is based) that the phenomena of dreams and of hypnotism are to be explained by the general laws of association as revealed especially in the confused and obstructed associations of the normal state. The critical and destructive part of Wundt's sensible and timely work has two aims: (1) to discriminate the attested phenomena of hypnotism from the alleged phenomena of thought-transference, telepathy, and "possession" on which no serious student will waste his words; and (2) to point out the confusions of thought in current explanations of hypnotic phenomena, which either confine themselves to restatements of the observed facts in terms of a hypothetical anatomy, or at any rate in Wundt's opinion base their physiological hypotheses on an inadequate psychological analysis. His own constructive work is an attempt to supply the missing analysis and accompany it with the most plausible physiological theory that our imperfect science allows. Dreams and the illusions of the hypnotic subject are doubtless explicable generally as derangements of the associative machinery. But they are specific forms of abnormal association, the special characteristics of which we wish to define. Suggestion, Wundt says (with James), is association accompanied by a "limitation of consciousness to the images aroused by the association." The scientific problem is: *Wie entsteht die Einengung des Bewusstseins?* This narrowing of consciousness manifests itself in a diminished sensibility to all impressions outside of the suggestions. Dreams show the same features, accidental impressions of sense or changes in the nutritive processes here taking the place of direct suggestions from without. But in sleep and dreams the limitation of consciousness is conditioned by general fatigue of the nervous system. In the hypnotic state it results not from fatigue, but from neuro-dynamic and vaso-motor changes in the distribution of tensions in the brain. Hence the superior intensity and vividness of the presentations that are allowed to develop themselves. This altered equilibrium of the forces of the brain is brought about by the suggestions of the operator, which are generally guided by him to a more or less definite end. The resulting derangements of normal associations are consequently less lawless than is the case in dreams. On these principles Wundt explains the chief facts of hypnotism as follows: Automatic obedience to the commands of the operator results simply from the fact that every idea tends to realise itself in action, is an incipient act; and in the narrowed consciousness of the hypnotic subject the idea suggested by the operator finds no competitors in the struggle for existence as a reality. This explanation (which is really as old as Spinoza) accounts also for positive hallucinations—there are no reductors, as Taine would say. Negative hallucinations (the non-existence of an existing door) may be explained sometimes by a contradictory positive hallucination (as of a curtain covering the door) more often in the same way as hypnotic analgesia

by the familiar analogy of our insensibility to the toothache when the attention is elsewhere strongly engaged. This is favored by the generally diminished sensibility of the hypnotic subject. Post-hypnotic suggestions are associations depending on partial memories, such as we have in the normal state when we merely recall an image or an object without time-and-circumstance localisation. The subject who is to execute a post-hypnotic suggestion at 7 o'clock is reminded by the striking of the clock of an image of a thing to be done which the original command of the operator associated with the stroke of seven. All else is forgotten. When the time limit is not thus definitely marked, the process must be analogous to that whereby some persons are able to waken at a predetermined hour in the morning. A latent association is aroused into full activity by naturally recurring conditions of internal physiological processes or external surroundings. Courtesy or prudence are perhaps all that prevent the best explanation of certain extreme cases being the old one: "the boy lied." Wundt rejects the claim that suggestion is the experimental method in psychology *par excellence*, for the very sufficient reason that the phenomena experimented with are only very partially in the control of the operator and are furthermore mainly pathological. He is far from disputing the practical efficacy of hypnotic therapeutics in functional disorders, but he regards the hypnotic sleep as a dangerous remedy, the employment of which should be limited to trained practitioners. The subjection of the hypnotic subject to the will of the hypnotiser is *a priori* an immoral relation to obtain between man and man unless justified by superior medical necessities, but, quite apart from *a priori* ethics, indiscriminate hypnotisation is to be discouraged as a direct cause of nervous degeneration. The book closes as it began with a dignified but severe reprobation of those thinkers who in the interests of occultism magnify the psychological significance of hypnotism and disseminate superstition in the name of science. PAUL SHOREY.

DER HYPNOTISMUS IN GEMEINFASSLICHER DARSTELLUNG. By *Dr. Hans Schmidkunz*. Stuttgart: A. Zimmer (E. Mohrmann). 1892.

This book (266 pp.) is a popular compendium of hypnotism. The author, beginning (I) with the hypnosis of common life, goes over the whole field as follows: (II) the phenomena of hypnosis, (III) its application, (IV) the "beyond" of hypnotism, (V) the conceptions of hypnotism, and (VI) its dangers. The seventh and last chapter is a short history of the subject.

Dr. Schmidkunz, Docent of philosophy at the University of Munich, is one of the few who believe that there is a "beyond" in hypnotism. He says on p. 65: "A hypnotised person was led through a room while sleeping. The experimenter made a few passes over his head and then violently whirled his arm around in a vertical direction before his subject. When the subject approached the marked place, he recoiled from it crying with pain." Our author asks, "what is this magnetic wall to be regarded as? As a charm, as an obstacle of occult power, from which the body recoils as from a wall of stone? If not, was it the subject's soul that

recoiled? Was it the hypnotised person's belief which created the wall?" etc. The two interpretations, the one attributing the effect to a magnetic power, the other to suggestion are typical. The former is bolder: he goes "beyond" hypnotism.

Our author is one of those who go beyond hypnotism, and is not satisfied with the theory that suggestion explains all. We may add that he regards telepathy as a sufficiently established fact. Telepathy finds little support among scientists in Germany, and Dr. Schmidkunz complains, in a circular letter to "Professor Wundt's and other Savants' Critical Saltomortales" of the cool and depreciative treatment which his book *Psychologie der Suggestion* received at the hands of men of science.

κρς.

L'Hypnotisme devant les Chambres legislatives Belges. Par *J. Delbœuf*. Paris: Felix Alcan. Pp. 80.

In a recent number of *The Monist* Prof. J. Delbœuf gave the reasons which have induced him to come to the conclusion that "persons in an hypnotic condition preserve at least a sufficient portion of their intelligence, their reason, together with freedom of action, to prevent them from committing deeds that neither their conscience nor their habits approve of." This opinion is entertained by many other hypnotists, but the more general opinion is that "suggestion" may be made use of for criminal purposes. Such is the case especially in France and in Belgium; and acting on that supposition the medical faculty of the latter country promoted in the legislative Chamber a law interdicting public hypnotic séances, and reserving the practice of hypnotism as a therapeutic measure exclusively to medical men, as well as the treatment of insane persons and those under twenty-one years of age. Professor Delbœuf, who is not a medical man, naturally objects when those who but a few years ago would have classed him and his fellow hypnotists as charlatans, seek without reason to reserve for themselves the promising field of labor opened up by the researches of others. He maintains that men are born hypnotisers as they are born artists, and therefore to exclude all but medical men from the application of the hypnotic power will often prevent its use for curative purposes. Moreover it is a serious question for those who possess this natural gift. They might perform the most praiseworthy actions and yet be subjected to a legal penalty. Professor Delbœuf states that by hypnotism he cured a youth eighteen years of age of a mania for stealing *(la manie du vol)*, and thus saved him from unmerited dishonor. On another occasion he had charge of a young wife who was possessed with the idea of murdering her children, and after all other means had failed he was able to remove the idea by suggestion extending over a period of eight days. He properly asks whether the performance of such actions ought to be treated as criminal.

The real question to be considered, however, is whether the practice of hypnotism is likely to be made use of for criminal purposes if it is permitted to every one. We much doubt whether any actual case of such an abuse has been legally established, or whether suggestion could lead to the perpetration of a criminal act unless

there was a predisposition in that direction. Professor Delbœuf makes use, however, of an apparent paradox which would seem to render abortive any such law of prevention as that above referred to. It is that there is in reality no such thing as hypnotism. M. Bernheim writes in a letter given in the present work, "for my part, in the thousands of hypnotisations I have practised, I have never seen the least inconvenience result. Undoubtedly very impressionable subjects can, under the emotional influence of auto-suggestion, present certain nervous troubles; but these a prudent operator can always calm by suggestion." Professor Delbœuf relates several cases of this kind within his own experience, which shows that severe nervous pain can be removed by simple assertion that it does not exist. He affirms that "the so-called hypnotic sleep is only a sign of suggestibility, and that it is not at all necessary to suggestive therapeutics."

We may conclude this notice of a very interesting contribution to the discussion as to the true nature and operation of hypnotism, by quoting the conclusions arrived at by the author as to the proper mode of regulating its practice. He suggests that representations of hypnotism should be permitted subject to the measures which regulate public spectacles; that any one should be allowed to become a hypnotiser, as he can become a shampooer or a truss-maker; that the hypnotist who gives remedies should be punishable, since he exercises the art of curing without a diploma; that he should not be allowed to hypnotise minors without the consent of the family; and that he should be forbidden to treat a sick person without the written authorisation of a medical man and under his direction. This rule Professor Delbœuf, although he disapproves of the law which forbids the practice of medicine to those who have not a diploma, has always acted on. He thinks that if medical men then studied hypnotism and practised it themselves, hypnotisers who had no diplomas would soon have nothing to do. This spirited defence by Professor Delbœuf of his views will be widely read. Not the least interesting portion of it is the criticism, with which it ends, of "the affair of the brothers Vandevoir," where we read that he is designated by his opponent M. Masoin "*doux et bon vieillard*" and "*l'homme cheveu*"! Ω.

UEBER DEN HAUTSINN. By *Dr. phil. et med. Max Dessoir*, Privatdocenten an der Universität zu Berlin. Separat-Abzug aus Archiv für Anatomie und Physiologie. Physiologische Abtheilung. 1892.

This pamphlet, a reprint from the *Archiv für Anatomie und Physiologie* of 1892, is an elaborate and careful investigation into the *modus operandi* of skin sensations. The first part is a discussion of the theory of sensation in general containing (1) an analysis of the ideas *Gefühl*, *Empfindung*, and *Wahrnehmung*, (2) a critique of Johannes Müller's doctrine of specific energies, (3) an exposition of the objectification of sensations. Feeling (*Empfindung*), according to the author, is, no magnitude, its main feature is intensity, quality becomes important only in sensation (*Wahrnehmung*). For the psychology of skin-sensations, we have to note the

great influence of accompanying feelings (*Mitempfindungen*). The second part is devoted to the author's investigations of the sense of temperature. Dr. Dessoir rejects Blix's point theory ; he regards the idea of two different end-apparatuses for warm and cold sensations as an unfounded assumption, and claims that the temperature sense is one mode of sensation possessing two qualities. The intensity of temperature sensations depends not only upon the *vis viva* of the heat in the stimulus, but also upon five other factors (1) the size of the surface affected, (2) the duration of the affect, (3) the thickness of the epidermis, (4) its conductibility, and (5), last not least, its temperature. *κρς.*

RECHERCHES D'OPTIQUE PHYSIOLOGIQUE ET PHYSIQUE. By *Clémence Royer*. Brussels Imprimerie Veuve Monnom. 1892.

The first part of this brochure consists chiefly of an examination of the theories of M. M. Hirth and Chaveau on chromatic sensation. The talented authoress disagrees with the view entertained by M. Chauveau, that the sensations of contrast which are fused cerebrally, so as to give, when viewed with both eyes, a white image, are subjective in an intellectual sense. The result is purely physico-physiological, as it is even assuming the intervention of M. Hirth's *interior eye*. Mad. Royer regards the eyes organised so as to effect a fusion of the colors and forms depicted on the two retinas, and she accepts the conclusion of M. Hirth, that they lessen the real polychromism of objects, the inability to perceive the infra-red and the ultra-violet rays concealing from us a considerable part "of the palette of nature and of its chromatic scale." The authoress refers with approval to the theory of M. Charpentier that the complementary colors correspond to inverse undulatory phases, which are destroyed by interference in the field of vision.

The second part of Mad. Royer's pamphlet is devoted to a consideration of the photography of colors, and the theory of light. It points out that the photography of colors, which has been effected to some extent by M. Lippmann, must be a physical and not a chemical process. It is the result of the periodic compressions of the sensitised silver-surface, due to the shocks it receives from the light undulations of the ether, which so modify the surfaces of the silver atoms that they reflect colored rays identical with those received from the object photographed. With reference to the propagation of light, the authoress affirms that the atoms of matter, as well as those of the ether, which differs from matter only in being imponderable and without inertia, are centres of emanation of a continuous and inpenetrable fluid, which is however indefinitely expansible or compressible. The size and form of atoms will thus depend on the compressions they receive, and they will be able to accommodate themselves to the spaces to which they are confined by the resistance of the atomic groups by which they are surrounded. But the world may be regarded as consisting of three sorts of atoms : (1) those of the ether which possess their primordial unity of expansive force and are endowed with perfect elasticity ; (2) those of ponderable matter, which have lost a portion of their expansive

force and elasticity; (3) those which are called vitaliferous, because they have regained their expansive force, and are thus capable of autonomous movements necessary to resist the compressions of the ether and to oppose the inertia of matter. They thus answer to the cell-souls of Haeckel. Ω.

DIE BEWEGUNG DER LEBENDIGEN SUBSTANZ. Eine vergleichend-physiologische Untersuchung der Contractionserscheinungen. By *Max Verworn*, Dr. med., Privatdocent der Physiologie an der Universität Jena. Mit 19 Abbildungen. Jena: Gustav Fischer, 1892.

The mechanism of muscle contraction and expansion and the motions of amœboid substance have been recognised as one and the same problem ; and several naturalists, foremost among them Hofmeister, Engelmann, and Edmund Montgomery have investigated it, fully aware of the enormous importance of the subject. The present pamphlet is small, it contains only 103 pages, but it contains the statement of the problem, a description of the author's experiments, and his solution so lucidly that one cannot read it without great satisfaction. Both processes, expansion as well as contraction, are, according to Verworn, spontaneous motions, and both are to be explained by chemotropy. Expansion, i. e., in amœba the protrusion of pseudopodia, is due to the plasma's hunger for the oxygen, which is contained in the surrounding medium. Every irritation (electric shocks, concussions, injuries etc.) causes a chemical decomposition of the oxygenised plasma ; it loses carbon, hydrogen, oxygen, and nitrogen, (as we know from the waste products, carbonic acid, creatine, lactic acid,) and these substances are exactly those which are most prominent in building up living substance. Irritations without exception cause the plasma to return to the nucleus. The chemical change in the plasma makes it hungry for the nuclear substances. The vital process, accordingly, is an interaction between the nucleus, the plasma, and the medium, so that in the constant exchange of materials the old structure is preserved ; and the fundamental features of the vital process are first the plasma's chemotropy for oxygen, causing centrifugal motions, and then its chemotropy for nuclear substance, causing centripetal motions. The plasma saturated with nuclear substances, shows a chemotropy for the oxygen of the medium ; it moves in a centrifugal direction, and the oxygenised plasma has become so unstable that it breaks down on the slightest provocation. The decomposed plasma exhibits a chemotropy for nuclear substance and thus returns in contripetal motions to the centre. Without entering into details we may mention that this accounts also for the fact that dying protoplasm always assumes a globular shape, until it crumbles to pieces. The *rigor mortis* is the last vital action of living substance. The plasma seeks once more the nuclear substance, but not finding sufficient material for being built up again into a substance endowed with a chemotropy for oxygen remains rigid until it decays.

The author finds his theory to hold good for the actions of the striated and

nonstriated muscles, and also of ciliated tissues. Having shown that the vital functions are due to the same forces that are observable in the retort of the chemist, he adds: "The savage accordingly was not quite wrong when he drew no distinct line, considering everything moving as alive. Life is motion. That old poetical view of all nature being animated with life throughout was in possession of a germ of truth, and our proud civilisation has actually made a retrogressive step in abandoning this view." κρς.

GRABER'S LEITFADEN DER ZOOLOGIE FÜR DIE OBEREN CLASSEN DER MITTELSCHULEN. Vienna and Prague: F. Tempsky. 1892. Price 1 fl. 60 kr.

We had occasion in a recent number of *The Monist* to review an excellent textbook of physics published by this same house. The present work on zoology is in its second edition, and is intended, like the above-mentioned work of Professor Mach's, for high-school instruction. Professor Graber, its author, died before the completion of the second edition, and the work was finished by J. Mik.

Graber's Zoology is unique in its class; it covers, within the restricted limits of two hundred and sixty-one pages, the whole field of elementary biology, human physiology, and zoology, as it is usually exploited in such books, and thus combines in a single volume what is usually contained in two or three. The human organism (Part 1) is made the starting-point of study in the work, and the explication of the physiological and mechanical functions of animals are thus all grouped about this central figure. In a concise form (55 pages) this book contains about all of human anatomy and physiology that is usually learned in high-schools. Part 1 also contains, at the end of the discussions, brief dietetic suggestions. "Systematic Zoology" is taken up in the Second Part. This part is well analysed and arranged. The cuts are also excellent. Attached to the book is a "Picture-Atlas." This atlas contains a number of colored plates, which depict various physiological and anatomical organs, and also four beautiful representations of scenes from the Naples Aquarium. Although this book will not be used by English school-students, it may be recommended to students of scientific German who wish a good introduction into the technical vocabulary of German biology and zoology, which to the foreigner is very difficult. μκρκ.

L'ANTHROPOLOGIE DU BENGALE. By *Paul Topinard*. Extracted from *L'Anthropologie* for May–June, 1892. Paris: G. Masson.

The present contribution to the science of Anthropology by the Editor of *L'Anthropologie*, is based on the anthropometric inquiries of Mr. H. H. Risley made under instructions from the government of Bengal. The conclusions deduced by Dr. Topinard from the large mass of material brought together by Mr. Risley, and which relates to members of all the castes to be met with in Bengal, are of great interest. He finds that the populations are much mixed, but that they may be divided into three types, one tall and dolichocephalic, that of the Aryans; another short and

brachycephalic, derived from northern Asiatics; and the third short and dolichocephalic, or that of the native blacks. India is a world by itself, and most of its inhabitants belong to races of which there is no specimen in Europe. Dr. Topinard naturally attaches more importance to physical than to ethnographical characters as evidence of anthropological descent, and he is justified by Mr. Risley's researches of which he speaks very highly; although he thinks they would have been more fruitful if the anthropometrical instructions prepared by the French Anthropologist had been more strictly adhered to. That they were not so is the more surprising as Mr. Risley's work is dedicated to Dr. Topinard himself. Ω.

UEBER SITTLICHE DISPOSITIONEN. By *Dr. Anton Oelzelt-Newin*, Privatdocent an der Universität in Bern. Graz: Leuschner & Lubensky. 1892. Price Mk. 2 70 Pf.

The main idea of this book is to prove that there are certain innate dispositions forming the elements of morality. The elements of morality are according to Dr. Oelzelt-Newin the attitudes of fear, anger, love, sympathy, shame, and pride. Conscience is a complex which has developed from these six dispositions. Having stated sufficient evidences for the heredity of moral dispositions and illustrated the parallel phenomena of bodily states in their reference to moral alienation, the author treats the six elements of morality in single chapters, explaining their causes and the influence of conditions under which they develop either into virtues or crimes. The essay (92 pp.) is a contribution to that ethical determinism which regards evil as the necessary result of given factors. "Religious people should say: Not only the stone which falls from the roof and kills a just man, but also the will of a criminal and the punishment of the judge are inscrutable ordinances of God. That alone is a true theodicy." As an optimist the author trusts that the evil of the world will be conquered with legal means and enjoins priests to revise in this sense their creed, jurists their law, and all men their love of mankind. κρς.

THE BEAUTIES OF NATURE. And the Wonders of the World We live in. By Sir *John Lubbock*. New York: Macmillan & Co. 1892. 429 pages. Price $1.50.

NATUR UND KUNST. Studien zur Entwicklungsgeschichte der Kunst. By *Carus Sterne*. Berlin: Verein für deutsche Literatur. 1892.

The first of these two books is a delightful compilation by Sir John Lubbock. It is another addition to that series of popular works which this well-known naturalist is now giving to English-speaking peoples. It makes no pretension of being scientific: it simply takes the world which science has revealed and shows us its wonders and its beauties. Yet it insinuates many a scientific fact and inculcates many a moral lesson. No one will regret the few hours that can be spent in its perusal, and the stimulus derived from it will heighten the pleasure which every religiously-minded heart takes in the contemplation of natural grandeur and truth. In the main, it is intended for unscientific readers. It requires hardly any prepara-

tory knowledge to be understood; yet it sometimes touches on a truth that even great thinkers overlook. Thus, *à propos* of the capacity for intact divisibility which some life-forms possess, Sir John remarks that these considerations introduce "much difficulty into our conception of the idea of an Individual." "In fact," he says, "the realisation of the idea of an individual gradually becomes more and more difficult, and the continuity of existence, even among the highest animals, gradually forces itself upon us. I believe that as we become more rational, as we realise more fully the conditions of existence, this consideration is likely to have important moral results." The work is divided into the following chapters: "Animal Life," "Plant Life," "Woods and Fields," "Mountains," "Water," "Rivers and Lakes," "The Sea," "The Starry Heavens."

The second of the two books that head this review is by Carus Sterne. Few men possess the wide technical knowledge and the same command of the historical literature of his subject, that this investigator and writer possesses. Carus Sterne unites with a rigorous scientific training the rare qualities of philosophical insight and sound erudition. He possesses the scientific facts on which to base valid judgments, and he deduces from these facts the inferences that affect the most important problems of life—its culture and morality. We have had occasion before, to refer to these phases of Carus Sterne's activity as an author.

In the present work the author of *Werden und Vergehen* discusses the relations which obtain between nature and art. Here is not the place to give even a synopsis of the great wealth of material which this book of 395 pages contains; we are allowed simply to hint at its purport and methods. Carus Sterne defines the artistic impulse in man to be a longing of the mind to rise above the ordinary routine of physical existence. It is a lifting ourselves out of our every-day life. This cannot be accomplished by the simple reproduction of the things of nature; such reproductions have not in themselves an elevating effect. Art is not imitative, art is creative. It uses color, form, space, merely as a means to give "local habitation" to an idea. The imitation of actually existing things is the beginning of art; but it is its lowest stage. Nature must be our guide, our norm, not our model. Here the middle road is taken between the old and the new idea of art. That was ultra-idealistic, this is ultra-realistic. The author then proceeds to discuss the notion of beauty in art and nature (Part I) and finally takes up generally (Part II) the subject of the artistic contemplation and reproduction of the world. All these topics, with their many subdivisions, are treated in Carus Sterne's best and most fascinating style. The work is well illustrated, and all interested in the natural history of art will find in it a store-house of valuable material. μκρκ.

PERIODICALS.

ZEITSCHRIFT FÜR PSYCHOLOGIE UND PHYSIOLOGIE DER SINNESORGANE.

CONTENTS: Vol. IV. No. 3.

UEBER DIE SOGENANNTE CONSCIENCE MUSCULAIRE (DUCHENNE). By *A. Pick.*

EINE NEUE THEORIE DER LICHTEMPFINDUNGEN. By *Christine Ladd-Franklin.*

LITTERATURBERICHT. (Hamburg and Leipsic: Leopold Voss.)

Mrs. Christine Ladd Franklin (a contributor to this number of *The Monist*) is one of those few women who have actually won a well deserved reputation as a thinker and scientific worker. She is an American by birth and the wife of an American savant. It is pleasant to find her name in a German periodical among whose editorial writers are men so prominent as Ebbinghaus, König, Exner, Helmholtz, Hering, Kries, Lipps, G. E. Müller, Pelman, Preyer, and Stumpf. Mrs. Ladd criticises Helmholtz and Hering, and thinks that the theories of Donders (in Gräfe's "Archiv," 1884) and Göller (in Du Bois-Reymond's "Archiv," 1888) have not received sufficient attention. In accord with their propositions, she sets forth an exceedingly simple hypothesis which attempts an explanation of the three main colors by atomic motions in the three different dimensions of space.

PHILOSOPHISCHE MONATSHEFTE.

CONTENTS: Vol. XXVIII. Nos. 9 and 10.

UEBER DIE GRUNDFORMEN DER VORSTELLUNGSVERBINDUNG. Psychologische Studie. (Concluded.) By *M. Offner.*

DER BEGRIFF DER VERSCHMELZUNG UND DAMIT ZUSAMMENHÄNGENDES IN STUMPF'S "TONPSYCHOLOGIE," BAND II. By *Th. Lipps.*

WERKE ZUR PHILOSOPHIE DER GESCHICHTE UND DES SOCIALEN LEBENS (Third Article: *J. S. Mackenzie*, An Introduction to Social Philosophy; *J. H. Ferguson*, The Philosophy of Civilisation; *W. A. Macdonald*, Humanitism). By *F. Tönnies.*

CONTENTS: Vol. XXIX. No. 1 and 2.

DIE MODERNE ENERGETIK IN IHRER BEDEUTUNG FÜR DIE ERKENNTNISSKRITIK. By *K. Lasswitz.*

DIE SITTLICHE FRAGE EINE SOCIALE FRAGE (I). By *F. Staudinger.*

RELIGIONSPHILOSOPHISCHE THESEN. By *E. von Hartmann.*

LITTERATURBERICHT. (Berlin: Dr. R. Salinger.)

ZEITSCHRIFT FÜR PHILOSOPHIE UND PHILOSOPHISCHE KRITIK. Vol. 101. No. 1.

CONTENTS:

PSYCHOLOGISCHE APHORISMEN. By *Otto Liebmann.*
UNTERHALB UND OBERHALB VON GUT UND BÖSE. By *Eduard von Hartmann.*
JAHRESBERICHT ÜBER ERSCHEINUNGEN DER ANGLO-AMERIKANISCHEN LITTERATUR AUS DER ZEIT VON 1890–1891. By *Friedrich Jodl.*
ZUR BEGRÜSSUNG DES ZWEITEN HUNDERTS DER BÄNDE DIESER ZEITSCHRIFT. By *Prof. Dr. Rud. Seydel.*
RECENSIONEN. (Leipsic: C. E. M. Pfeffer.)

THE AMERICAN JOURNAL OF PSYCHOLOGY. October, 1892. Vol. V. No. 1.

CONTENTS:

DISTURBANCE OF THE ATTENTION DURING SIMPLE MENTAL PROCESSES. By *Edgar James Swift.*
PSEUDO-CHROMESTHESIA, OR THE ASSOCIATION OF COLORS WITH WORDS, LETTERS, AND SOUNDS. By *William O. Krohn*, Ph. D.
REPORT ON AN EXPERIMENTAL TEST OF MUSICAL EXPRESSIVENESS. (Part II.) By *Benjamin Ives Gilman.*

The present investigation made by Mr. Edgar James Swift shows that a disturbance of the attention through sight is more effective in lengthening the reaction time than when the disturbance comes through the sense of hearing; but whenever the reaction follows a slight sensation, the time of choice is less affected by disturbances of the attention than if the excitation is a sound. Dr. William O. Krohn concludes, after carefully studying several hundred cases of pseudo-chromesthesia, that a greater per cent. of them arise from some sort of cerebral work due to the close relation of the cortical centres. Mr. Gilman concludes from experiments made with various persons, that musical expressiveness has been overestimated, and that on the emotional theory of its nature the importance of the art has also been overestimated. (Worcester: J. H. Orpha.)

MIND. New Series. No. 4. October, 1892.

CONTENTS:

THE FIELD OF ÆSTHETICS PSYCHOLOGICALLY CONSIDERED, II. By *Henry Rutgers Marshall*
LOTZE'S ANTITHESIS BETWEEN THOUGHT AND THINGS, II. By *A. Eastwood.*
THE STUDY OF CRIME. By *Rev. W. D. Morrison.*
ON THE PROPERTIES OF A ONE-DIMENSIONAL MANIFOLD. By *Benj. Ives Gilman.*

In his present article Mr. H. R. Marshall finds a basis for the differentiation of Æsthetics from Hedonics, in "pleasure permanency in revival" as belonging particularly to the former. Mr. Eastwood criticises Lotze's antithesis between thoughts and things which is closely connected with his erroneous opinion that time is a property of things in themselves. The study of crime by Mr. W. D. Morrison discusses crime under the three heads of the movement of crime, its causes, and

its repression, of which the last deals with the theory, the methods, and the efficacy of punishment. In his discussion of the properties of a one-dimensional manifold, examples of which are time, the straight line, quantity, intensity, number, and pitch, Mr. B. I. Gilman, who was a pupil of Mr. C. S. Peirce, seeks to give a formulation of one-dimensionality in which the general notion of relation and converse relation is substituted for that of greater and less difference. This number of *Mind* contains a voluminous note on the blind deaf-mute child, Helen Keller, by Prof G. C. Robertson, the late editor, whose death is announced in the same number. (London : Williams & Norgate.) Ω.

INTERNATIONAL JOURNAL OF ETHICS. October, 1892. Vol. III. No. 1.

CONTENTS:

THE NATIONAL TRAITS OF THE GERMANS AS SEEN IN THEIR RELIGION. By *Prof. Otto Pfleiderer*, D. D., University of Berlin.
PHILANTHROPY AND MORALITY. By *Father Huntington.*
INTERNATIONAL QUARRELS AND THEIR SETTLEMENT. By *Leonard H. West*, LL. D., London University.
1792.—YEAR I. By *David G. Ritchie*, Jesus College, Oxford.
UTILITARIANISM. By *A. L. Hodder.*
BOOK REVIEWS.
(Philadelphia : *International Journal of Ethics*, 118 S. Twelfth Street.)

THE PHILOSOPHICAL REVIEW.

CONTENTS: Vol. I. No. 5.

PSYCHOGENESIS. By *President David J. Hill.*
THE PROBLEM OF EPISTEMOLOGY. By *Professor Andrew Seth.*
THE ORIGIN OF PLEASURE AND PAIN, (II.) By *Dr. Herbert Nichols.*
DISCUSSIONS: REALITY AND "IDEALISM." By *F. C. S. Schiller.*
REVIEWS OF BOOKS.
SUMMARIES OF ARTICLES.

CONTENTS: Vol. I. No. 6.

GREEN'S THEORY OF THE MORAL MOTIVE. By *Prof. John Dewey.*
THOUGHT BEFORE LANGUAGE. By *Prof. William James.*
PLEASURE-PAIN, AND SENSATION. By *Henry Rutgers Marshall.*
REVIEWS OF BOOKS.
SUMMARIES OF ARTICLES.
(Boston, New York, Chicago : Ginn & Company.)

THE NEW WORLD. December, 1892. Vol. I. No. 4.

CONTENTS:

THE BRAHMO SOMAJ. By *Protap Chunder Mozoomdar.*
THE FUTURE OF CHRISTIANITY. By *William M. Salter.*
PROGRESSIVE ORTHODOXY. By *Egbert C. Smyth.*
MICHAEL SERVETUS. By *Joseph Henry Allen.*

THE PRESENT POSITION OF THE ROMAN CATHOLIC CHURCH. By *G. Santayana.*
THE CHURCH IN GERMANY AND THE SOCIAL QUESTION. By *John Graham Brooks.*
A WORLD OUTSIDE OF SCIENCE. By *Thomas Wentworth Higginson.*
THE BIRTH AND INFANCY OF JESUS. By *Albert Réville.*
THE MONISTIC THEORY OF THE SOUL. By *James T. Bixby.*

The last article is a criticism to the point, discriminating and fair. The author takes special notice of Dr. Carus's position, whose views are recapitulated with accuracy, but not accepted as convincing. (Boston: Houghton, Mifflin, & Co.)

REVUE PHILOSOPHIQUE.

CONTENTS: September, 1892. No. 201.

LA PERSONNALITÉ DANS LES RÊVES. By *J.-M. Guardia.*
HISTOIRE ET PHILOSOPHIE RELIGIEUSES. By *M. Vernes.*
SUR LA TERMINOLOGIE PHILOSOPHIQUE. By *Durand (de Gros).*
COMPTES RENDUS ET NOTICES BIBLIOGRAPHIQUES.

CONTENTS: October, 1892. No. 202.

DU TROUBLE DES FACULTÉS MUSICALES DANS L'APHASIE. By *Dr. Brazier.*
LE DÉVELOPPEMENT DE LA VOLONTÉ. (Concluded.) By *A. Fouillée.*
LE MOUVEMENT PÉDAGOGIQUE. By *E. Blum.*
ANALYSES ET COMPTES RENDUS.
REVUES DES PÉRIODIQUES ÉTRANGERS.

CONTENTS: November, 1892. No. 203.

LA PSYCHOLOGIE DE W. JAMES. By *L. Marillier.*
DE L'UNITÉ DE LA SCIENCE: LES GRANDES SYNTHÈSES DU SAVOIR. By *E. de Roberty.*
SUR LES DIVERSES FORMES DU CARACTÈRE. By *Th. Ribot.*
VARIÉTÉS.
ANALYSES ET COMPTES RENDUS.
REVUE DES PÉRIODIQUES ÉTRANGERS. (Paris: Félix Alcan.)

PHILOSOPHISCHES JAHRBUCH. Vol. V. No. 4.

CONTENTS:

DIE NEUESTE PHASE DES SCHOPENHAUERIANISMUS. (Concluded.) *Bäumker.*
DIE SPECULATIVEN GRUNDLAGEN DER OPTISCHEN WELLENTHEORIE. (Concluded.) *S. J. Linsmeier.*
RELIGION UND ENTWICKELUNGSTHEORIE. (Concluded.) *Schanz.*
DER SUBSTANZBEGRIFF BEI CARTESIUS IM ZUSAMMENHANG MIT DER SCHOLASTISCHEN UND NEUEREN PHILOSOPHIE. (Continued.) *S. J. (C.) Ludewig.*
RECENSIONEN UND REFERATE. (Fulda: Fuldaer Actien-Druckerei.)